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AUTHOR	Berry, Barnett
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ABSTRACT

A case study methodology was used to investigate the career aspirations and expectations of a range of college seniors in six diverse institutions of higher education. The research question asked was: "What impact would current policy reforms such as career ladders and merit pay have on the career choices of college students who were presently not choosing to enter the occupation of public school teaching?" Interviews were conducted with 80 students in the major fields of business, chemistry, mathematics, physics, engineering, biology, psychology, sociology, and English. Information was obtained on the students': (1) motivations, experiences, and expectations; (2) choice of subject matter, skills, values, and perceptions of teaching; and (3) public school experience; also investigated were conditions under which they might consider teaching as a career. Teaching conditions appeared to have a negative impact on these students. It is concluded that the sole addition of increased pecuniary rewards and opportunities for advancement for teachers may have an adverse effect on the teacher labor market. Among recommendations offered for educational policy makers is the need to allow for greater teacher control and less bureaucratic intrusion. Included in the appendixes are the interview guide and detailed descriptions of the students and schools involved in the study. (JD)

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PAPER NO. 419

A CASE STUDY OF THE CAREER EXPECTATIONS OF NONEDUCATION COLLEGE SENIORS IN THE SOUTHEAST: WHY MISS DOVE'S STUDENTS ARE NOT BECOMING TEACHERS

Barnett Berry

November 1985

SP 027 695

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200 Park Offices, Suite 204, Post Office Box 12746
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TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
	Statement of the Problem	1
	Rationale for This Study	3
	Related Literature	4
II.	METHODOLOGY	10
III.	SUMMARY OF MAJOR FINDINGS	13
	Motivations, Experiences, and Expectations	13
	Subject Matter, Skills, and Perceptions of Teaching	17
	Conditions for Teaching	18
	Public School Experiences	19
IV.	THE TEACHING ENVIRONMENT	22
V.	CONCLUSIONS AND RECOMMENDATIONS	25
	References	31
	Appendix A Student Sample By Major and By Institution	33
	Appendix B Interview Guide	34
	Appendix C The Students and Their Schools	36
	Stone Hill College	36
	The Students	36
	Degree Choice	37
	Career Aspirations and Expectations	39
	Career Decisions Not To Teach and Public School Experiences	41
	Summary of Stone Hill College	44
	Citrus State University	45
	The Students	45
	Degree Choice	46
	Career Aspirations and Expectations	49
	Career Decisions Not To Teach and Public School Experiences	53
	Summary of Citrus State University	56

TABLE OF CONTENTS (cont'd)

	Page
Southern University	59
The Students	59
Degree Choice	60
Career Aspirations and Expectations	62
Career Decisions Not To Teach and Public School Experiences	66
Summary of Southern University	69
State University	71
The Students	71
Degree Choice	72
Career Aspirations and Expectations	74
Career Decisions Not To Teach and Public School Experiences	76
Summary of State University	79
Johnson College	81
The Students	81
Degree Choice	82
Career Aspirations and Expectations	84
Career Decisions Not To Teach and Public School Experiences	86
Summary of Johnson College	87
Baptist University	89
The Students	89
Degree Choice	90
Career Aspirations and Expectations	92
Career Decisions Not To Teach and Public School Experiences	95
Summary of Baptist University	97

I. INTRODUCTION

Statement of the Problem

> Career ladders and incentive pay will attract more academically talented people into the teaching profession (Rosenholtz, 1985, p. 353).

Rosenholtz expresses a point of view that is widely accepted both within and outside the education community. This view assumes that the lack of career opportunities and low salaries prevent the most academically able from entering the occupation of public school teaching (Schlechty and Vance, 1983; Weaver, 1983). Based on this reasoning, many policy makers and researchers have concluded that the problem of attracting and retaining academically able (high quality) teachers has been exacerbated by the fact that business and industry careers offer more monetary and career rewards than teaching. Subsequently, their solutions focus on career ladders and incentive pay for improving the quality of public school teachers. Some of these decision makers assume that policies that are enacted to retain academically able teachers (presently employed) will be equally as effective in attracting talented prospective teachers (college students).

According to McLaughlin, et al. (1985), the present reform movement of public school teaching is:

> based primarily on solutions which, by political necessity, are applied across-the-board to entire classes of institutions and individuals. Unfortunately, solutions generated in the political arena often lack the flexibility necessary to address local conditions (p. 2).

They state that:

> teachers--one of the areas of the reform movement--often have had little opportunity to delineate the problem, cause, or solution. Subsequently, "the promise or the limits of any educational reform policy, particularly those that take direct aim at the competence of the teaching force, must be assessed against the reality of

> the task--against the context within which teachers teach and incentives which support professional growth and commitment to a teaching career (p. 3).

W. W. Charters (1967) noted almost two decades ago that "the obvious facts about the teaching career are not so obvious after all" (p. 182). Recently, other researchers have begun to link the "realities" of teaching to policy formulation and implementation--especially in the area of the "professionalization" of public school teaching (Wise, et al., 1984; Wise and Darling-Hammond, forthcoming; Bird, et al., 1985).

In an effort to better understand some of the complex factors regarding the teacher labor market, the Southeastern Regional Council for Educational Improvement commissioned several qualitative studies of market patterns of initial career choice, recruitment and selection, turnover, and mobility of public school teachers in Southeast. These studies revealed:

(1) low turnover rates and no disproportionate turnover in any particular subject area.

(2) that the majority of teachers who did leave left because of retirement and family reasons.

(3) that the teachers who left because of dissatisfactions did so because of student discipline, poor administration, little parental support, poor working conditions and the lack of authority, respect, and control.

(4) divergent (and limiting) mobility patterns of urban and rural teachers.

(5) the importance of role models for career identification in teaching and the significant evidence of negative role modeling by present teachers for their students.

(6) limited marketing and recruiting practices by universities and school systems for education students and teachers.

(7) school systems selected teachers with altruistic characteristics, coaching skills, and attitudes and expectations that fit into the community.

(8) the desire of many teachers to have work schedules that fit their family life styles and expectations.

(9) the reentering of former teachers into other school systems after "sabbaticals" due to spouse moves and child-rearing.

(10) a committed, yet in many cases, an alienated teacher work force (due to the aforementioned dissatisfactions).

The findings that people entered teaching because of a need to work with and serve others has been well-documented in other studies (Patton, 1954; Lortie, 1975; Page and Page, 1982; Roberson, Keith, and Page, 1983). Further, the studies revealed that teaching positions were available, conducive to meeting traditional female family responsibilities, and a significant climb up the socioeconomic ladder for those from rural backgrounds. In large measure, the lack of career opportunities and low salaries within public school teaching were not significantly impacting upon labor market decisions of those who were presently in education.

Rationale for this Study

The results of these studies suggested that many other variables were involved in understanding the teacher labor market that might affect the efficacy of such policy reforms as career ladders and incentive pay in attracting and retaining teachers. However, these studies described forces that were impacting upon those who were presently in teaching--with collective attitudes and values held by those from particular backgrounds and those with a desire to serve public school-age people and their own families. While career ladders, incentive pay, and other current reforms might well have limited positive impact on present teachers' decisions to choose teaching again, these same policies might have a different impact on prospective teachers who did not necessarily hold similar attitudes and values as those of current teachers? This reasoning evolved into the following research question:

> What impact would current policy reforms such as career ladders and merit pay have on the career choices of college students who were presently not choosing to enter the occupation of public school teaching?

An investigation of this question would begin to bridge the gap between the research literature and the needs of educational policy makers. In doing so, it might encourage researchers to broaden the teacher labor market research agenda and aid policy makers in developing policies that would attract and retain talented young people in public schools.

Related Literature

Little research has been conducted to determine why students choose not to teach in the public schools. A few studies have focused on either high school-level Education Standards Commission, 1985; (Mangieri and Kemper, 1984; Page and Page, 1984; and Roberson, et al., 1983) or college-level (Jantzen, 1981; Bergsma and Chu, 1981; and Jamar and Ervay, 1983) students and their attitudes toward teaching, but the available research does not provide a clear direction for policy makers.

In a study to identify those aspects of teaching that were appealing or unappealing to high school students in Florida, the Education Standards Commission (1985) surveyed a random sample (1 percent) of tenth and twelfth graders in the state's public and private high schools. An analysis of the responses led to the development of the following set of student beliefs about teachers and teaching as a career:

- The salary for a beginning teacher is too low. This was the most frequently cited reason students gave for not choosing teaching as a career.
- The work schedule of a teacher would not encourage students to choose teaching as a career.

- The characteristics selected by students to describe a "good classroom teacher" are similar to characteristics or behaviors identified by current research to be associated with improved student achievement.

- Teacher behaviors which manifest affective aspects of the teaching-learning process were selected by students as among the most important characteristics of a good classroom teacher.

- There should be more and/or newer equipment in the schools to facilitate student learning.

- One of the major detractors from choosing teaching as a career is the students' observation of the apparent lack of interest in learning exhibited by fellow high school students.

- High school students do not show (sufficient) respect to their teachers.

- Ineffective teachers should either be required to improve their performance or be forced to leave teaching.

- Job availability is not a major factor when high school students consider teaching as a potential career.

- Having significant adults (e.g., parents, other relatives, teachers, or counselors) recommend teaching as a career would not necessarily encourage a student to choose it.

Mangieri and Kemper (1984) investigated why college-bound high school students were or were not interested in teaching as a career. They collected and analyzed data from responses to questionnaires completed by 4,349 students (juniors and seniors) in 21 high schools located in urban, suburban, and rural areas of Pennsylvania, Arizona, Ohio, Minnesota, South Carolina, and Texas. Implications discussed in their report included:

(1) The number of students expressing interest in becoming teachers is more than adequate to meet future needs; however, whether or not they are the best qualified or most committed was open to question.

(2) Women will continue to make up the largest proportion of teachers.

(3) Knowledge and skill in a subject area, interest in a subject area, and a desire to work with children or adolescents are important factors for an interest in becoming a teacher.

(4) Prestige and recognition, working conditions, having a friend or relative who is a teacher, and the cost of education were not important factors to those expressing high interest in teaching.

(5) Higher salaries are "very important" to attracting people into teaching.

(6) Attempts to attract people into teaching should take into account differences in interest that may be related to gender.

In a study to identify high school seniors' perceptions of the teaching profession, Page and Page (1984) collected and analyzed data from responses to questionnaires completed by 2,478 students representing ten different states in the Southeast. Their findings showed that:

(1) Salary, discipline problems, and working conditions are perceived by the majority of students as discouraging factors.

(2) The limited number of high school seniors' considering teaching as a career made that decision at an earlier age than previously thought.

(3) The factor that best discriminates whether students would consider teaching as a career was simply whether or not other individuals had discussed this possibility with them.

Roberson, et al., (1983) investigated the relative importance of various background variables, attitudes, and perceived motivations on the occupational aspirations of high school seniors who aspire to teach compared to those who do not. They analyzed data from a national longitudinal study (High School and Beyond, 1981). The sample included 688 seniors who intended to become elementary or secondary teachers and 10,411 seniors who planned to seek other fields of employment upon completion of college. Four conclusions drawn from their analysis included:

1. Now, as in the past, it is primarily white females who aspire to teach. Seventy-five percent of those aspiring to teach in the present sample were white females.

2. Those aspiring to teach are much less concerned with earning a good income than are those choosing other professions. This effect seems especially true for males.

3. Job security, once reported as an important motivation for entering teaching, does not appear to be an important consideration today, except for blacks. Today's teacher aspirants are influenced by a desire to work with friendly people and (for blacks and males) are not especially concerned with "success."

4. Consistent with previous research, it appears that teacher aspirants today are somewhat less able intellectually than their classmates. Lower ability is a notable influence for females and blacks who aspire to teach, but not for white males. It seems possible that affirmative action, while creating opportunities for women and minorities, may drain off some teaching talent to professions with higher rewards (p. 20).

In a survey of college students preparing to become teachers, Jantzen (1981) sought to ascertain why the students had decided to become teachers. The reasons given included: (1) the service motive, (2) an interest in children, and (3) an interest in performing in a leadership role. Bergsma and Chu (1981) found that beginning education students tended to be motivated by liking children, while graduating seniors tended to be motivated by criticisms of schools and a desire to change and influence schools through teaching. They concluded that the students of the beginning 1980s were more interested in the intrinsic rewards of teaching, more likely to model their teachers, and less likely to be affected by relatives in their career choice.

Jamar and Ervay (1983) studied the effect of teacher education on the career goals of women. They surveyed 381 female college students with interests or majors in elementary or secondary education. They found that college experience did not change or broaden their career goals and that,

for many, their teaching career was secondary to their family goals. Further, the percentage who expected career goals to become secondary to family goals increased the farther they predicted their futures.

Other studies have found that women are concerned about integrating their careers with traditional women's roles of wife, mother, and homemaker (Steinberg, 1979; Greenglass and Devins, 1982; Peterson and Roscoe, 1984).

While some studies indicate that salary is a factor in a student's decision not to teach, other studies indicate that those who aspire to teach are less concerned with earning a good income than are those choosing other professions. However, it is not evident that students have realistic salary expectations of the various professions and occupations. In a study of the salary expectations of 277 college freshman and sophomores in Virginia, North Carolina, and Alabama, it was found that college students distort expected beginning salaries in various occupations (Bird, et al., 1985). The students overestimated the beginning earnings of those careers with higher-than-average growth potential (e.g., accounting, marketing, engineering, computer programming, business management, and statistics) and underestimated only one occupation--public school teaching.

Research that specifically investigates the career aspirations of non-education college students in terms of attracting them to public school teaching is absent from the literature. Nonetheless, there is some evidence that a number of factors steer talented undergraduates away from the choice of teaching as a profession. Both private, liberal arts colleges and professional educators have helped their brightest students to view precollege teaching as a career that is legitimate only for those who can't aspire to more prosperous fields.

> Teaching is one of the few occupations that college freshman have actually observed first hand over a long

> period of time. Good teachers often serve as adult role models for good students, thus encouraging them to consider teaching as a career. Finally, even in these self-regarding times, college freshman often yearn for careers in social service, and teaching is the most familiar and convenient of such careers. Given that generally positive initial view, it takes structured--if often unconscious--pressure to turn all but the tiniest handful away from public education. But that pressure is part of the nature of the liberal arts college (Dunne, 1984, p. 20).

Public school teachers often discourage their students from entering the field (Berry, 1984; 1985). Also, college students may choose not to teach in the public schools for reasons other than low salaries and the lack of career opportunities. Dunne (1985) noted that many of her bright students at Dartmouth College become certified teachers, but opted not to enter the public school labor market. Instead, they "go to teach in private schools" since "the teaching load is less," there is "more classroom autonomy," there is "less bureaucratic bull," and they will be "teaching kids just like themselves."

Given this limited research on why college students do not choose to enter public school teaching careers, this study investigated the career-choice patterns of a sample of college seniors in the Southeast. An assumption undergirding the study was that an understanding of college seniors' expectations and motivations regarding their career choices might be useful to decision makers in formulating policies to attract bright college students into public school teaching.

II. METHODOLOGY

A case study methodology was utilized to investigate the career aspirations and expectations of a range of college seniors in diverse institutions of higher education in the Southeast. In selecting the study sites, consideration was given to the type of institution and its mission, the cultural diversity of the student body, and the economic, geographic, and demographic variables impacting upon the institution's location. Six institutions were selected representing various combinations of these variables. They included the following types of colleges and universities (and their pseudonyms):

- A former women's teachers college, now a small, relatively rural state coeducational liberal arts institution (Stone Hill College),
- A regional state university in an urban and economically prosperous location (Citrus State University),
- A research and flagship university of a state system in an urban and economically thriving location (Southern University),
- A historically black state university in an urban location (State University),
- A prestigious, private, four-year liberal arts institution (Johnson College), and
- A rural and private liberal arts institution which has a few graduate and professional programs and emphasizes its religious atmosphere (Baptist University).

It was assumed that these diverse colleges and universities attracted different types of students which would be reflected in the student sample. Students who were majoring in "high-demand" fields were the primary focus of the study. Further, average-achieving and high-achieving students were distinguished within the majors. Although the sample was slightly skewed toward high-achieving students, enough average-achieving students were

included so that the similarities and differences in the career expectations of these two categories of students could be better understood.

Eighty students in the major fields of business (20), chemistry (17), math (14), physics (10), engineering (8), biology (5), sociology (2), psychology (2), and English (2) were interviewed (see Appendix A for number of students interviewed by major and by institution). There was an intentional oversampling of students in math, science, and preprofessional areas. Although, the study intended to address only the career expectations of noneducation majors, one math education major was selected. The students were selected by nomination through their respective department chairpersons. Each chairperson nominated 6-8 seniors who were representative of their department's 1985 graduating class on the basis of sex, race, and academic ability. The chairperson distinguished those who were of average ability and those of high ability. SATs and GPAs were reported by the chairs and the students. In summary, 79 percent of the students were white, 21 percent black or hispanic, and 50 percent male. Seventy-nine percent were 21-22 years of age; 14 percent were 24-26; 4 percent were 27-30; and 2 percent were over 30. Twenty-five percent had a GPA of above 3.75, 35 percent from 3.0 to 3.75, 25 percent from 2.5 to 2.9, and 15 percent from 2.0 to 2.4. Thirty-five percent had scored from 1200 - 1500 on their SAT, 30 percent from 1000 - 1190, 25 percent from 800 - 990, and 10 percent from 680 - 790.

From a composite list of 144 college seniors, 81 agreed to be interviewed regarding their career aspirations and expectations. The students were not aware that the interview would focus on factors which motivated them not to consider public school teaching as a career. They were told

that the interview would focus on their career aspirations and expectations. From the interviews, I initially sought an understanding of their parents' background, family and sibling relationships, public school experiences, best teachers in high school, decision-making processes concerning college and degree choice, career goals and alternatives, knowledge of job markets, and perceived changes in their career paths was sought. Also obtained from the interview was an understanding of their perceptions of public school teaching--generally and specifically. Considerable effort was spent trying to have them elucidate what changes in the public school system would be necessary to attract and retain them as public school teachers (see Interview Guide in Appendix B).

Data were analyzed along five dimensions: contextual background (of the institution), the students, degree choice, career aspirations and expectations, and career decisions not to teach and public school experiences. These dimensions were used in describing the career expectations of the students in each of the six sites. However, the site case studies are not inclusive of all data collected in each site. The intent was to capture the essence of the backgrounds, experiences, values, and attitudes of the students interviewed.

Section III summarizes the major findings. Section IV describes the institutions. Although it is recognized that these findings are primarily preliminary and exploratory, Section V sets forth the conclusions and makes recommendations to researchers and policy makers who are interested in further studying and subsequently enacting and implementing reforms to attract and retain talented young people in the occupation of public school teaching.

III. SUMMARY OF MAJOR FINDINGS

The career expectations of noneducation majors reflect the influence of a varied mixture of experiences, values, and perceptions. Some differences were noted between high- and average-achievers, but greater differences appeared between those from urban and rural environments. Experiences in the public school years appear to play a significant role in the decision not to pursue teaching careers. Subtle, yet powerful, factors seem to influence these students' career decisions and their attitudes toward the occupation of public school teaching. The remainder of this section describes these factors.

Motivations, Experiences, and Expectations

High achievers were more likely to express an interest in intellectual-type careers and "challenging" jobs than average achievers, who tended to seek "steady" ones. In all majors, high achievers were more likely to state that they wanted to understand their fields "better," "make a difference," and to "continue learning" in a "stimulating" environment. They tended to be interested in making "contributions to mankind," "helping people who wanted to be helped." Average achievers tended to express more interest in monetary factors and steady jobs.

Differences in students' backgrounds seemed to influence their career expectations. High-achieving urban students tended to consider their parents as role models in their career decisions, although some rejected their parents' orientations toward specific professions and earning money. Many of these bright urban students verbalized that parental emphasis on high academic achievement was understood from an early age. Also, many of

these students were positively influenced to pursue their present academic interests by their "best" public school teachers. These teachers did not explicity encourage or discourage specific career alternatives since it was assumed that the students' career paths were directed toward specific professions or science-related fields. Importantly, these "best" teachers were characterized more as "friends" who were "always there" to counsel and help. While these few "best" teachers knew their subject matter very well, their interpersonal skills and interest in the students as valued individuals made them influential for their high-achieving students.

The career aspirations and expectations of high-achieving rural students tended to be the antithesis of rural values and the rejection of rural life styles. The attitudes and values of these students were encouraged and nurtured by their parents and community, their own public school teachers, and, in some cases, college life itself. Rural parents "motivated" their children to have jobs unlike their own. However, there were variations on this theme. Certain degree choices and careers would be "eliminated" for these rural students, since their parents realized they would "have to go to New York to find a job." Similarly, many of these same students chose to attend particular colleges because they were "close to home," and they were "scared" of large institutional settings. Like their average-achieving counterparts, some of these bright rural students also sought "steady jobs" with "nice-sized companies" that were "not far from home." However, other students sought jobs that would provide life styles unlike "back home," since "nothing much goes on there." Although some "won't return home," since one "can't stay in a small town and make a living," others couldn't since "people [back home] don't respect you if you do." As will be described later, this latter factor has influenced many

rural students not to consider teaching as a career alternative.

Rural students, more than their urban counterparts, tended to be influenced more by their high school teachers. In large measure, many of them attended small high schools, and the same subject-area teacher taught them for four consecutive years. These teachers "instilled" a "deep desire" in their students to pursue "high demand" courses in the math and sciences. However, they were more likely to discourage their students from becoming public school teachers since they knew their students "could do better."

In addition, urban universities provided some rural students with experiences they would not have necessarily had in smaller "rural" colleges. Not only were more cosmopolitan life styles learned and appreciated, but also there were more student internship opportunities in local businesses and industries that helped them acquire a better understanding of various career alternatives and actual labor market conditions. This, in turn, inhibited the consideration of a career such as teaching--a career that was believed to be "only for those who wanted to return home."

The analysis by major area found that the career expectations of high-achieving students in math and science, business, the humanities, and social science varied considerably. A distinction between research-oriented and industry-oriented students in chemistry, math, and engineering became apparent. Research-oriented students tended to have higher GPAs and SATs and were less inclined to be concerned about monetary incentives in their careers. For research "types," the "definition of engineering gets fuzzy" in industry because of the "tons of paper work" and "monotonous work." Industry "types" recognized the need for advanced training and degrees (beyond the Bachelor of Science) for promotions in industry. For

example, in industrial chemistry, if one wanted to be more than a "bench chemist" and "top out [salary-wise] in the $30s," then one "need[s] that piece of paper [Ph.D. and/or M.B.A.] to advance." Although many students recognized the need to go into higher levels of management to earn more money in their respective fields (especially in chemistry and engineering), many of the high achievers did not want to take the management path because of their self-recognized inability to manage people, their unwillingness to accept "all of the authority," and, for numerous females, family responsibilities that they anticipated in the future.

Although a number of business students (especially average achievers) expected their degrees to enable them to obtain the "American dream"--financial security--others (especially high achievers), expected their degrees to enable them to follow or exceed their parents' career paths. For the former, their career expectations emerged from earlier work experiences in factories or businesses, and they viewed their degree choice as a means to an end. For the latter, their career expectations emerged from strong parental role models (those, for example, who were in "business" themselves); they viewed their degree choice as taken-for-granted status. However, similarities in expectations between high- and average-achieving students did exist. For example, many of these business students expected to work long hours and earn considerably lower salaries in the initial stages of their careers. Others, especially females, recognized that long hours and travel were part of ambitious careers in business and opted for smaller, "slower-paced" firms that offered fewer growth opportunities, but more time for one's family responsibilites. In fact, many young women recognized that careers in "high-pressure" companies might change during their childbearing (and childrearing) years.

High-achieving students in the humanities and social sciences were more likely to choose their fields because of a "love of academics" and expected their careers to enable them to pursue an intellectual life. "Lucrative jobs" were not necessarily an important ingredient in their career expectations since, frequently, these students would "rather be poor as long as [they] could think, analyze, and be creative" in their jobs. As will be described later, this factor has influenced many high-achieving humanity and social science students not to consider teaching as a career alternative. The environment of schools would be nonconducive for creative pursuits.

Subject Matter, Skills, and Perceptions of Teaching

Many high-achieving math and science majors tended to choose their field because of its "intrinsic order." They viewed their subject matter as "pure and logical" and "tangible," and they viewed the social sciences and the humanities as "boring." These students tended to express boredom with subject matter that was perceived as relativistic and intangible since there were no definite "right or wrong" answers.

In turn, many of these same math and science students, who were "intrigued" and "motivated" to "do strange things" and "discover something" important, expressed being more comfortable "stuck away in a lab." They preferred "interfacing with a computer and working alone" to "interacting with diverse students." Nonetheless, some high-achieving students indicated interest in upper levels of management in industry and perceived themselves quite able to work with people and to "explain things well." However, this would be to a "team of chemists" who were "very specialized" and had "common backgrounds." On the other hand, these same students

perceived that they could not explain things well to public school students, who would not be specialized and would come from "too many different backgrounds." Some of these high achievers would consider teaching if salaries were higher. However, their self-recognition that they did not have the "teaching-type of personality" primarily kept them out of the teacher labor market.

Some engineering, physics, and chemistry students perceived teaching to be a sales job. Since these students considered themselves "doers" and not "sellers," teaching would be "hard." As one noted: "You have to sell yourself to students and meet them halfway--not like in college . . . . It is all how you give it to them in high school." Most students recognzied the importance of having "patience" in one's desire to teach. With their "temperament" and the fact that "with all those kids so much can go wrong," teaching could not be for them. Public school classrooms were not work environments to which these students would be attracted.

Conditions for Teaching

As previously described, their values, attitudes, and interpersonal and communication skills prevented many high-achieving students from considering teaching as a career alternative. Some bright students perceived teaching as a "fun" and "important" endeavor. They noted that they would teach for less money than they would earn in their chosen fields in industry--especially since they were not sure "if it [would] be rewarding to save some jerk $1,000 on his tax return." However, certain conditions would be necessary for this choice. These included:

(1) They would teach only the advanced classes in their field.

(2) They would not want to be responsible for homerooms, paper work, and coaching.

(3) They would not have to deal with "wild" or unmotivated students.

(4) They would not have to "monitor 200 kids in a lunchroom."

(5) Since they wanted to teach only for a few years (as a "reprieve" from college before entering graduate school), they would not want to go through the "hassle" of teacher certification.

It became apparent that high-achieving students were more likely to view teaching as an inherently interesting job. Teaching, for many of these students, would be a job whereby they could "deal" with nonroutine tasks in a nonroutine environment with the expectation of "contributing" toward the betterment of mankind. However, their acumen regarding the work life of the public school teacher--teaching "boring" subject matter, unnecessary paper work and burdensome nonteaching duties, unmotivated students, and bureaucratic requirements--prevented their consideration of teaching as an alternative. Although these perceptions of teaching were disincentives for teaching for a wide range of students, high-achieving students were more likely to be "turned off" from teaching by the lack of teacher control and bureaucratic intrusions by the school system (especially regarding curriculum and student discipline issues). Subsequently, an inherently interesting job becomes a realistically troubled occupation.

Public School Experiences

The public school experiences of these college seniors affected their career decisions not to teach. As public school students, organizational arrangements, social interactions of students, and the actual pedogogy of their teachers influenced them not to consider teaching as a career alternative. The following briefly summarizes these factors:

(1) Many bright students were tracked throughout their lives as public school students. This organizational arrangement tended to isolate them from other student "cliques" that were perceived as being less interested in academics and different. This tracking seemed to nurture an intolerance for diversity among these bright students and promoted the desire to work with those only like themselves.

(2) Some students were alienated by their public school experiences. This alienation resulted from either being a social outcast in school or always working at various jobs and not participating in school activities. With no positive identification with public schools or with their teachers, these students could not envision themselves as teachers at all.

(3) Many college students (both high- and average-achieving) perceived that they would be "bored" teaching, since they were "bored" as public school students. Many viewed high school teaching as "doing the same thing over and over."

(4) Other students perceived that they would be "bored" with teaching, since they had "learned so much [they] couldn't go teach what [they] learned in the first year" (of college). In large measure, these bright students could not envision themselves "breaking down" advanced concepts learned in their fourth year of undergraduate study for high school students.

Public school experiences seemed to be the most influential factors involved in these students' decisions not to teach or, in some cases, not to consider teaching at all. The separation of the academically gifted from diverse student body populations appeared to be a crucial factor.

This preliminary study's findings regarding the career expectations of college seniors in high-demand fields found that the brightest students were "turned on" by a "love of academics," the pursuit of an intellectual life, and professional autonomy so that they might achieve a number of varied and noteworthy goals. Although these students were considerably altruistic in their career goals, public school teaching was not perceived to provide a working atmosphere where they could "think, analyze, and be creative." It was apparent that a number of these students were motivated by and expected considerable financial reward and professional mobility in

their upcoming careers. However, more often than not, these students' attitudes toward working with diverse groups of adolescents in the public school environment mitigated the possibility of teaching careers--even if they could be induced to teach by greater salaries and career opportunity within the occupation.

IV. THE TEACHING ENVIRONMENT

This study of the career expectations of these talented noneducation college majors offers some insights for understanding why these students decided not to pursue public school teaching careers. Findings from other research by the author (Berry 1984, 1985a) seem to indicate that the expectations, values, and perceptions of these students may be significantly different from the perceived needs and expectations in the education field.

An inner-city personnel director:

> The best academic qualities are not necessarily what we want . . . . We need someone who has a commitment to teaching . . . the ability to communicate and organize . . . to withstand pressure . . . and have empathy as opposed to sympathy . . . . Also, yes, she should have that energy level--especially at the elementary level.

An inner-city principal:

> I picked up someone in November . . . . She's very birght . . . and at that time I said she's a savior [high test scores and GPA] . . . but she turned out to be a terrible teacher . . . . She doesn't expect enough . . . . She just can't handle people.

A rural school superintendent:

> First, you have to love the church . . . not like life in the fast lane . . . have a real appreciation for [those who are] poor and illiterate . . . . Talk about teaching the whole child--our teachers really have to do it.

A rural school superintendent:

> There is a helluva difference between teaching physics and chemistry at the high school level and at the college level . . . . I wouldn't want a Ph.D. from DuPont--I wouldn't know what to do with him (from Berry, 1984).

Although many of these students expressed dedication and altruistic

concerns for their future careers in business, industry, and academia, they tended to indicate more subject orientation than people orientation. (Average-achieving students, however, were more likely to be less achievement- and altruistically oriented.)

The teaching environment that these students described was supported by the earlier studies too. A female calculus teacher, 1 year experience, urban high school:

> I know I don't like it . . . it's student attitude, discipline . . . the whole nine yards . . . . I thought kids wanted to learn . . . . I don't know [expressing considerable exacerbation to me at this point in our conversation]--it's their language, their behavior, the way they talk . . . . They don't have any respect . . . . In my two last classes [both general math], we're all hot and tired [there's no air conditioning in her room] . . . I can't teach them anything . . . they won't be quiet and they won't listen . . . . When I send in discipline referrals, it takes 3-4 days before something is done [by the administration].

A female chemistry teacher, 20 years experience, suburban high school:

> I have a different kind of student . . . . It used to be that schools were the center of activity [in the community] . . . now the malls are . . . . Most all of them [students] drive . . . . We used to have home visitation--now no one is home.

A rural elementary teacher:

> You have to be so careful . . . . The child will say "my mama will sue" . . . . We let parents win.

A former high school speech therapy teacher:

> I have to teach in a broom closet.

A former high school chemistry/physics teacher, five years experience:

> I was dissatisfied with working as a coach. In [this system], if you gave up coaching, they terminated your contract . . . . I am teaching in a private school back home.

A former high school calculus teacher, 15 years experience, presently a management-trainee at a bank:

> I wasn't happy with the administration . . . . I was disturbed over the value of mediocrity in the schools. . . . They value success at the bank . . . there is a chance to shine [here].

A former high school calculus teacher, 14 years experience:

> I was disenchanted with school and had personal problems at home . . . . You see, I don't need to work . . . . I presently am sewing Halloween costumes . . . and intend to teach somewhere in the future . . . . I am not going into industry . . . could not work 8-5 until my children are grown (from Berry 1984, 1985a).

Basically, there appears to be a mismatch between the career expectations of these high-achieving students and the teaching environment. They would like careers that provide status as a professional (autonomous decision-making), flexibility, and opportunity for intellectual growth. They do not perceive teaching careers as meeting those needs. Unfortunately, the public schools, through their organizational arrangements and the experiences provided to their students, have influenced "prospective teachers" not to consider teaching as a career alternative.

V. CONCLUSIONS AND RECOMMENDATIONS

Since this was a preliminary and exploratory study, the conclusions and recommendations offered must be considered from that perspective.

Conclusion One: Salary incentives were not necessarily the most important ingredient in the career expectations for the brightest of these students in high-demand fields. Bright students have been encouraged (in many cases by either their parents or public school teachers) to pursue their intellectual interests. Given that intellectual life ha rarely associated with lucrative occupations or professions, it was not surprising that these students' pecuniary interests in their careers were secondary to their intellectual interests. While a "love of academics" was not necessarily mutually exclusive of a love of money (or the "American Dream"), there was a tendency for the high achievers to perceive that they "would rather be poor as long as [they] could think, analyze, and be creative in [their] jobs."

> Recommendation One: Further study (of a longitudinal and/or quasi-experimental nature) of the career expectations and mobility patterns of bright college students who enter teaching and those who enter industry/academia. This would aid decision makers to determine policies that would best attract and retain academically talented people as public school teachers.

Conclusion Two: There were important distinctions between the career expectations of urban and rural students regarding potential teaching careers.

The variation in the students' motivations could be traced apparently to their specific backgrounds and experiences--most evidently by those who were "more urban" and those "more rural." For many urban students, high levels of academic attainment or corporate success were assumed by their parents, teachers, and themselves. However, many bright urban students

with intellectual goals were more likely to be idealistic and somewhat altrusitic about their career paths. With financial security provided by parents, there was a tendency for some of these students to be less concerned about salary considerations--especially in the early stages of their careers. On the other hand, for rural students, high levels of academic success were not necessarily assumed for them. In fact, their career expectations appeared to be guided by the rejection of rural life styles. As it was "brought out" by these students, public school teaching was perceived by them (and by their parents and teachers) as a rural or "poor person's occupation." However, these rural and primarily first-generation college students were more likely to consider public school teaching at an earlier point in their lives. Teaching has been, and to some extent still is, the first "profession" in a family's occupational mobility. In large measure, it a familiar "profession" that can be practiced at home.

> Recommendation Two: Policies designed to attract and retain public school teachers should take into account not only the career expectations, but also the difference in life-style and mobility expectations between urban and rural college students.

Conclusion Three: There were important distinctions between the career expectations of high- and average-achieving students as they relate to teaching.

The career expectations of high-achieving students fit more closely one requisite characteristic for teaching--primarily the expectation to make "contributions to mankind." On the other hand, the career expectations of average-achieving students fit more closely another requisite characteristic for teaching--primarily the expectation (and willingness) to work in a bureaucratic work setting. Yet, these characterizations are not mutually exclusive. While bright students (the group we purport to attract

to teaching) may be interested in altruistic career endeavor, their human/interactive skills do not necessarily fit the needs of diverse public school students. Questions are posed: Should public school teachers teach "all kinds" of students? Should all teachers be required to teach unmotivated students or be expected to deal with students' personal lives?

> Recommendation Three: Policy makers must be cognizant that many bright, talented people may not be suited for the myriad of interpersonal and communications skills required of effective public school teachers (in the present organizational structure).

Conclusion Four: Public school teaching could be attractive to talented college students. However, certain conditions within teaching would need to be changed.

Contrary to conventional wisdom, many of today's talented college students would like to make "contributions to mankind." Because many of these students had dedicated teachers while in school, they saw teaching as an "important" occupation. However, they would not enter teaching unconditionally. Some would teach only the advanced classes, while others would not want to be responsible for extracurricular assignments, unreasonable paper work and administrators, or undisciplined or unmotivated students. Still others would teach for a few years, except they would not go through the "hassle" of teacher certification. Structural alterations in the occupation of public school teaching would apparently attract some bright students to teaching (at least for awhile).

> Recommendation Four: If teaching is to attract and retain academically able college students, then working conditions must allow for greater teacher control and less bureaucratic intrusion, and policies must allow easier access for "short-term" teachers.

Conclusion Five: Public school teachers and experiences played a powerful role in developing the career expectations of these college students--especially those which mitigated their choice of teaching as a career

alternative. The "best" high school teachers of these college students had a considerable influence upon their career expectations. For bright students, their "best" teachers encouraged them to pursue their academic interests, but not within the context of public school teaching. Urban teachers taught their "best" not to be public school teachers. In addition, certain organizational arrangements, social interactions of students, and the day-to-day pedogogy of teachers influenced these students not to consider teaching as a career alternative. First, "gifted and talented" students were "always" in the same classes and seemingly learned to be intolerant of other students--this diverse population they would have to teach as public school teachers. Second, some students never participated fully in public school life (due to working at jobs or being social outcasts) or related very well to their public school teachers. Subsequently, they couldn't envision themselves as public school teachers. Third, many students were "bored" by their teachers and consequently, viewed teaching as a "boring" occupation--i.e., having to teach the "same thing over and over." Others indicated that they would be bored by teaching because they have not been taught their subject matter in such a way that it could be "taught down" to high school students.

> Recommendation Five: School system administrators and present public school teachers should recognize the importance of teachers as role models for today's public school students. These students are potentially part of tomorrow's teacher labor pool and are socialized presently not to become teachers. Policies, teaching strategies, and socialization procedures must be implemented to begin remedying this adverse situation.

Conclusion Six: Career ladders and incentive pay may very well contribute toward greater status of the occupation of public school teaching and, subsequently, greater respect for teachers.

Teacher pay needs to be increased. However, this is not necessarily

because of its potential effect on the labor market and the ability of the public schools to attract and retain academically able teachers. Rather, raising teacher pay would be a direct expression of how society values education and teaching. This may very well have a positive impact on the values and attitudes of many high school and college students toward teaching.

However, the sole addition of increased (yet limited) pecuniary rewards and opportunities for advancement for teachers may have an adverse effect on the teacher labor market. The modest increases in teacher salaries and changes in career structures that presently are proposed would most likely attract not the brightest to teaching--only those who would be willing to put up with undisciplined students, bureaucratic intrusions, burdensome paper work, and a myriad of extracurricular duties for financial gain (as compared to their present jobs). Subsequently, policies such as career ladders and incentive pay may very well attract those whom we say we do not want in the public school classroom. On the other hand, those who we say we do want would not be attracted by these incremental changes in the financial and occupational structure of the public schools. Likewise, many of these same high-achieving students do not hold attitudes and expectations that would fit into either present or proposed structural arrangements. Many seek professional lives that have few bureaucratic intrusions. This conclusion is not surprising given the subtle, yet powerful factors at play in influencing college seniors' career decisions and their attitudes toward the occupation of public school teaching. However, with a more systematic understanding of schooling, teaching, and teachers, policy makers may very well be able to tap into a pool of altruistic, high-achieving students who could fit into schools under the

"right" conditions. Albeit, policy makers would be wise not to rely solely on rational, economic incentives to increase the size of this potential pool. Efforts to achieve this would require subtle and interrelated policies. Surely, our public schools and our students deserve such efforts.

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APPENDIX A

STUDENT SAMPLE BY MAJOR AND BY INSTITUTION

	Stone Hill	Citrus State	Southern University	State University	Johnson College	Baptist University	TOTAL
Chemistry	3	6	-	2	-	6	17
Math	3	-	5	1	-	5	14
Physics	-	3	3	1	3	-	10
Engineering	-	5	3	-	-	-	-
Business	4	5	5	2	-	4	20
Biology	2	-	-	-	3	-	8
Sociology	-	-	2	-	-	-	2
Psychology	-	-	-	-	2	-	2
English	-	-	-		2	-	2
Math Education	-	-	-	-	-	1	1
TOTAL	12	19	18	6	10	16	81

APPENDIX B

INTERVIEW GUIDE

ARTS AND SCIENCES - STUDENTS

1. Tell me About Yourself

   A. Age, Sex
   B. Place of birth/where were you raised (family mobility)?
   C. Parental occupation/siblings (education, occupation)
   D. Marital status (engaged?)/occupation
   E. Public school experience (espeically high school)

      1. Best teachers (characteristics)
      2. Student behavior (discipline, academics, activities)
      3. What was school like for you?
      4. Who did you hang around with?

2. Tell me About Your University Experience

   A. How did you get here?
   B. Degree Program (requirements, level of difficulty)
   C. Extracurricular

3. Student's Interest in Degree Program

   A. What were the circumstances that influenced your decision to major in _____?
   B. What were the major attractors that your choice held for you?
   C. What persons influenced your decision? (Who did or did not in high school?)
   D. How do you feel about your decision now?
   E. What other programs did you consider seriously (Probe: career indicated)?
   F. Any programs not considered?

4. Career Aspirations

   A. Goals
   B. How would you describe yourself as a _____?
   C. Where would you like to be in five years?
   D. Where would you like to be in ten years?
   E. What are the odds you'll reach your five/ten year goals?
   F. If not, what are the alternatives?

5. Career Expectations

   A. Which jobs have you applied/have you worked (reasons?)
   B. What skills are employers seeking?
   C. Work conditions (hours, support, travel, expense account, interpersonal rel.)
   D. Salary/benefits

E. Vis-a-vis marriage and family
F. Family and marriage
G. How will above change over time?

6. Employment Mobility

A. Do you plan to stay in this job? How long?
B. What circumstances might influence you to change jobs?
C. Where won't you work?

7. Public School Teaching

A. How do you perceive public school teaching as an occupation (in general)?
B. How do you perceive public school teaching as an occupation for you (specific)?
C. How do teacher earnings and working conditions compare to _____ (specific career) to other occupations?
D. What would it take for you too be interested in public school teaching? (What would need to be changed in public education in other for you to teach? Probes: student behavior, administration, extracurricular assisgnments, lunch duty, support services, salary)
E. How long would you teach?
F. Where would you teach?
G. What would it take for you to be eligible to teach?

8. Academic Ability

A. SAT
B. GPA
C. GRE/MCAT/LSAT

APPENDIX C

THE STUDENTS AND THEIR SCHOOLS

STONE HILL COLLEGE

Stone Hill College is a four-year public liberal arts institution that serves 4,000 undergraduate men (32 percent) and women (68 percent). Additionally, small graduate programs in such areas as biology, business, and education serve approximately 900 (primarily part-time) graduate students. Stone Hill, founded in 1886, was formerly a state women's teacher's college. A 1982 freshman student profile described that: 86 percent were from in state, 78 percent lived in college housing, 22 percent commuted, and 16 percent were minority. A 1983 undergraduate profile showed that: 15 percent chose the arts and humanities; 5 percent, biological sciences; 21 percent, social sciences; 30 percent, business; 15 percent, education; and 14 percent were undecided.

Stone Hill College is located within a city with a population of 36,000 (64,000 metropolitan) and is approximately 20 miles from a major metropolitan area of 550,000 people. Once a trading center for the farmers of the surrounding area, the city and surrounding county are relatively industrialized with a number of manufacturers of textiles, chemical, and brick.

The Students

Twelve students were interviewed: 3 chemistry majors, 2 biology, 3 math, and 4 business. Nine students were white, and three were minority. Eight were female. The students' scores on the SAT ranged from 700 to 1300 and their GPAs from 2.0 to 4.0. Most were either 21 or 22 years of age,

but two males were both 24. Most of these students came from the surrounding rural area, and their parents generally had blue-collar occupational backgrounds. They chose to attend Stone Hill primarily because it was "close to home." Many of these students were the first in their families to attend college. If not, their parents tended to be public school administrators or teachers. Similarly, urban students tended to choose Stone Hill because it was close to relatives' homes or their parents' "new home" in the nearby city. Stone Hill was chosen by these students because it was small or they were "scared" to go to large universities where there would be "250 students in introductory classes."

Degree Choice

These students were primarily influenced to major in their respective fields by their high school science or math teachers. For some, these teachers were "real good" because of the "way they taught . . . always helping you after class and after school." Subsequently, they had considerable influence on the students' identification with the subject matter. Even though their teachers tended not to push one particular occupation over another, they inspired these students by "explaining things real well," "always [being] willing to help," and instilling a "deep desire" for "pursuing their subject matter." This pattern seemed especially prevalent for the higher-achieving students (3.0 to 3.7 GPAs). The pattern tended to differ for the other students (2.0 to 2.6 GPAs). These students did not identify as strongly with their math and science teachers and claimed to choose majors that gave them "more opportunity than an education degree." These students were more likely to have chosen teaching at an earlier time in their school life. Although their

elementary and junior high school teachers were positive role models, they were "turned off" in the latter stages of their high school experience by their teachers, discipline problems, and their parents. As one black female chemistry major, whose father is an educator, noted:

> I have thought about public school teaching . . . but, after hearing my father talk about it . . . . Boy, he complains.

Parental influence in a student's choice of major was evident in another way. For one business student, majoring in interior design was not a practical choice because her parents did not want her to "have to go to New York to find a job," since it was "too far away."

Two other factors appeared to be relevant in influencing students' choice of majors. One factor, the difficulty of math, tended to attract these average-achieving students to business. Even though these students "enjoyed" math in high school and had "always done well," they found upper-level calculus at Stone Hill to be "too abstract." Subsequently, there was a tendency for these average-achieving students to choose a math-related specialty such as computer programming in business. Another factor, the "intrinsic order" of the subject, tended to attract high-achieving students to math and science. This seemed especially so for the brightest of the students interviewed, a 4.0 math major who scored 700 on the analytical part of the Graduate Record Examination. Even though his teachers did not challenge him in high school, his degree choice was molded much earlier. This male math major, who has applied to graduate programs in physics at Stanford, Berkeley, and Princeton, claimed he "grew up in the '60s." He had long been motivated by the "mystique of the space program" and the "romanticism associated with NASA." Because he was driven by his pursuit of "experiments and rockets," he "wouldn't care about the money"

associated with a particular job. In fact, because of his intellectual pursuits, he was not very interested in a standing job offer of $30,000 to be a systems' analyst with a large computer firm. Although his best teachers did not necessarily influence his academic career, they did have qualities which impressed him. He noted that high school was "mundane" for him, and his math teachers were "not great," although they were "better than the norm." Importantly for him, his teachers were "enthusiastic," but not very good administrators, and their positive attitude about math "spilled" over to the students--inspiring them to be interested in mathematics as a field of study.

Career Aspirations and Expectations

The range of career aspirations for these students at Stone Hill was considerable. For example, a white male chemistry major who aspired to "work with chemicals in space," noted that "the bottom line is to be financially independent." On the other hand, a black female biology major, who noted that she "doesn't want to go into anything fancy," claimed that she would like to go to "tech school," become a respiratory therapist, and "make at least $7 per hour." For the most part, these students claimed that "making money was not the most important thing." In fact, this pattern tended to hold more for those students who had higher GPAs and SAT scores.

More often than not, the career expectations of these students appeared to emerge from their own families' occupational and mobility experiences. Although most wanted to work for "nice-sized companies," they were rather unwilling to move very far from home for their first job. This pattern tended to be especially evident for single or unengaged females who

asserted that they were "homebod[ies]." Many of these students expected to work "8 to 4" or "9 to 5" in an "office environment" and "hoped" to start at "$16,000 to $18,000" and be "making $20,000 after 5 years." Most of them received their information regarding their impending employment from other students, since they "hadn't really looked" for or been interviewed for specific jobs. But more often than not, those rural students who were first-generation college seemed to aspire to what their parents were not. Since they had worked with their parents on construction sites or on factory lines, their career aspirations focused on "no second shifts" and "comfortable" life styles.

All students, except one, mentioned that they did not want to move into management in their respective fields. Only a chemistry student noted that he wanted to "call the shots" because, for him, this would be most "challenging and lucrative." Others believed that they did not have the necessary personal characteristics for management. For example, the "brightest" math major (with the 4.0 GPA), who was the student manager of the college's computer center, noted:

> I am not a manager as far as people go . . . . It is a gut feeling . . . . I'm very easy . . . . People can twist me . . . . If they whine, I'd give in.

Others, especially females, realized that they would have family responsibilities that would prevent them from having the time and the continuous career required for management. As a math major (3.6 GPA), who was engaged and planned to "work with computers" to prove to herself that she was independent, noted:

> Once I have children I would quit and stay home until they were in the fifth grade . . . . That is what my mother did.

Most expected "steady" jobs that would be "challenging." "Steady"

work was not only expected by those who aspired to be computer programmers, personnel specialists, and respiratory therapists, but also for the 3.1 GPA chemistry student, who planned to go to graduate school in toxicology and then to medical school to specialize in forensic pathology. This black female student, who did not intend to have children of her own, claimed that she would like to work "8 to 12 hours a day," for "the state." For her, it was a job she "could count on." However, "challenging" work tended to be expected more by those with higher GPAs and SAT scores. For example, it was these students who tended to note that they would change jobs if they were "bored" and were not allowed to work on "challenging problems." On the other hand, those students with lower GPAs and SAT scores tended to note that they would change jobs if they "couldn't communicate with their manager" or "didn't like their fellow workers." Most wanted to "make sure [they] would be happy."

Career Decisions Not To Teach and Public School Experiences

These students' perceptions of the public schools and their own experiences as public school students appeared to have considerable influence on their attitude about becoming teachers themselves. These students recognized the "importance" and "awesome responsibility" of the occupation of public school teaching. However, their recognition that "kids are too wild," "parents don't discipline [their children] and teach [them] responsibility at an early age," and teaching "is a 24-hour job" contributed considerably to their unwillingness to teach. With regard to the latter, a chemistry major quickly asserted, "In the lab, I don't take my work home with me . . . . I can relax when I go home." Others (especially those who indicated they would teach at one time) recognized that they "did

not have the patience" to deal with all the diversity that is present in today's public schools. As one female business major (3.6 GPA and 1100 SAT) who aspired to work in a "9 to 5 office environment" asserted, "With all those kids, so much can go wrong." Another female business major, (2.6 GPA and 725 SAT) who intended to work in a similar office environment, claimed, "I drove a school bus for 3 years and knew I didn't want to teach . . . [because of] poor discipline and the inability of schools to punish."

However, there were other variables which impeded their willingness to become teachers. For some, "teaching down" to high school students would be difficult. As one black female chemistry student (3.1 GPA) noted:

> Teaching might not be so bad . . . a challenge, it really would be . . . . Many people know their subject matter, but can't get the message across . . . . High school chemistry and college chemistry are much different . . . . It is difficult to break it down and teach at the high school level.

For others, the manner in which they were taught had negatively influenced them away from a teaching career. As a black female biology major (2.5 GPA) asserted:

> As a teacher you do the same thing over and over . . . you say, "class, today we will learn about snails" and you do the same thing next year . . . . As a respiratory therapist you have different cases . . . do different things . . . It would be exciting.

However, there was more to understand regarding why this "average" college student (who once thought that she would be a teacher) would not teach:

> Kids who go to school today go because they have to . . . . As a respiratory therapist, I would be helping people who want to be helped . . . . I could feel good [about my work].

The "brightest" math major (4.0 GPA), whose best high school teachers were "not good administrators," but were extremely "enthusiastic," had these reflections on teaching:

> My experience is that many teachers need a job and they are not really interested in teaching . . . . Teachers see kids as the dregs of society--not willing to get down to their level to see what's really going on . . . . There are a lot of administrative duties--if Johnny is not in class, where is he? . . . If he comes in, you have to take him to the office . . . . There ought to be a one-to-one relationship between student and teacher . . . . [Teachers need to be] less bogged down with administration--like my math teacher; she didn't take roll, but was so enthusiastic.

He continued with what it would take to attract and retain him as a teacher over a long period of time:

> I would have to be given the freedom to do what I think would be necessary . . . . That says it all . . . . Do it my way . . . . I'd hate to say all my life, but maybe . . . I'd probably be happy.

Even though these students stated that teachers were "underpaid," they consistently said that they would teach for less money than they anticipated they would otherwise earn in their chosen fields. If discipline problems with students and bureaucratic problems with administrators could be alleviated, many noted they would consider teaching. Even the chemistry student, who claimed financial independence as his primary career goal, noted that he "would teach within certain parameters." For him, it would be "like being a chemist except you'd be working with kids . . . nice to see how well you could teach and know if I was a successful teacher." Some female students noted that teaching "wouldn't be bad if [their] husband[s] earned enough," especially since teaching would be a "good job if you are a mother." Even females who recognized the familial advantages of teaching, noted other disadvantages. As one math major (3.1 GPA) stated:

> Even though the hours are better, you are home earlier in the afternoon, and there is the summer vacation. I wouldn't have a lunch hour [as a teacher] . . . . I wouldn't like to monitor 200 kides in a lunchroom . . . . [In my work with the computer firm,] my lunch is like a break in a quiet atmosphere . . . . In schools you are constantly working.

Summary of Stone Hill College

The career expectations of these students at Stone Hill were influenced considerably by their rural backgrounds and the fact that most were first-generation college students. Their career role models were their parents and public school teachers. Their parents and, ultimately, their teachers defined for them what they did not want to become--blue-collar workers and public school teachers. However, the backgrounds of some students appeared to limit the options which they could consider. While some "enthusiastic" teachers inspired them to be interested in their subject matter, others (and their own experiences as public school students) taught them about the difficult working conditions in the public school classroom. Average-achieving students tended to focus on discipline problems and the lack of parental support, high-achieving students on the lack of teacher autonomy and an overburdensome bureacracy. Other significant public school experiences influenced their decisions not to teach. Dull classes they took as students convinced them teaching would be a dull occupation for them.

Although female students recognized that teaching could enable them to meet what they considered their future family responsibilities, they also appreciated the idea of a job that "would not go home" with them. Brighter students were more likely to seek interesting and challenging jobs, and average students sought stable occupations which afforded them a better life style than their parents. While most had realistic and scaled-down salary expectations, only one student appeared to be motivated by a high salary in a corporation.

CITRUS STATE UNIVERSITY

Citrus State University is a public institution serving 14,000 undergraduate men (49 percent) and women (51 percent); 5,000 students attend on a part-time basis. Many of these part-time students are older than the norm. Thus the average age of undergraduates at Citrus State is 24. A variety of graduate programs serve 3,200 students. Citrus State, primarily a regional institution founded in 1956, recently opened a medical school, the University's first professional program. A 1983 undergraduate profile showed that: 11 percent chose the arts and humanities; 13 percent, biological sciences; 13 percent, social sciences; 31 percent, business; 8 percent, education; 16 percent engineering; and 6 percent were undecided.

Citrus State University is located within a city of 275,000 people (700,000 in the surrounding county) that is noted as the "industrial hub" of the state. The city has a diverse mix of industries (e.g., beer, chemicals, cigars, citrus, electronics, seafood, and steel). During the past two years, 210 new industries have located or expanded in the city.

The Students

Nineteen students were interviewed: 6 chemistry majors, 3 physics, 5 business, and 5 engineering. Twelve students were white, 5 Hispanic, and 2 black. Eight were female. The students' scores on the SAT ranged from 740 to 1500 and their GPAs from 2.4 to 4.0. While the majority (11) of the students were traditional college-age seniors, six ranged from 24 to 26 years of age, and two were 33 and 45 respectively. Many of these students were originally from the surrounding area and their parents tended to have blue-collar occupational backgrounds. Others were "transplanted"; their parents had white-collar occupations that brought them to the city. Still

others had parents who had retired in a nearby resort area.

These students chose Citrus State primarily because it was "close to home," they "could live at home and still go to school," or their "parents didn't want [them] to go far away for school." One male chemistry major, whose father was a "big bucks physician," came to Citrus State from out-of-state because his father was "running his life." Some students noted their spouses had jobs which "tied" them to the area. Still others recognized that they "needed to go to a smaller university" or to a "school that didn't have as much of a party influence."

Degree Choice

These students were influenced to major in their respective fields primarily by either their parents, early experiences in business, or their public school teachers. For some chemistry majors, their parents (or grandparents) "put medical school in their mind" at an early age. However, for them, medical school was eliminated from their career paths. One student "got married" and "couldn't afford to go to med school." However, graduate school in chemistry (which would pay him $8,600 a year in stipends) and a career in pharmaceutical research was the "closest [he] could get to being a physician without putting in all that money." Another student noted that "with [his] upbringing [he] thought it would be the traditional father-son path" to medical school and then a career as a surgeon. However, once he "got away and realized [he] was different," it became apparent to him that he "wasn't cut out to be a doc." A female chemistry major, whose father is a chemical engineer, described the emergence of her degree choice by simply noting, "Dad did it." This bright student (4.0 GPA and 1480 SAT) noted that she

> always liked math, but wanted to apply it . . . . [She] started off in chemical engineering, but they taught garbage--stuff that computers do for you now. (For her), "chemistry [was] more difficult than chemical engineering.

A black female engineering major (2.9 GPA and 825 SAT) noted that she "made her first 'D' in science in the seventh grade" and that her "daddy made [her] bring [her] science book home everyday." She continued: "I guess he got me into science . . . . But, I have always been a 'why' person . . . I got into learning and I wanted to go beyond." This student, who considered herself as "shy" and "not too bright," originally wanted to be a nurse--like one of her sisters. But, her sister's experiences convinced her otherwise:

> She told me what you have to put up with [in the intensive care unit and the emergency room] . . . . I couldn't put up with all the different attitudes of the families of the patients . . . . It would be nerve racking . . . . I am a people person only sometimes . . . . I can deal with them sometimes, but I usually would not want to be bothered.

It was apparent that a number of business students were influenced to choose their major on the basis of early work experiences such as "mowing lawns," "assisting in garage sales," and "helping a neighbor who was an independent jobber." These students tended to come from lower-middle to middle-class backgrounds. While some were working "35 hours a week" and making As and Bs, others made Bs and Cs. There was a tendency for these male business students to emphasize that they "didn't come from wealthy families" and they "wanted to help their parents out" financially. In fact, these students tended to work throughout their high school years and "didn't get involved" in the "social side" of their public school experience. They were "always business-minded . . . organized . . . money hungry . . . and goal oriented." Subsequently, a major in business was a

"natural" for them.

Further, a number of physics, chemistry, and engineering students chose their major (or, in some cases, did not choose a particular major), at least partly because of the influence of their high school teachers. One female physics major noted the "reason that [she] chose physics was because of a great high school physics teacher." She described her teacher as a "very, very interesting" person who had a "fantastic way of talking to students." In high school, she came to understand that physics was "the underlying principle of everything" and she was "good at it." A female, Hispanic engineering major noted that her physics teacher in high school "gave [her] the idea of being an engineer." This bright (4.0 GPA and 1300 SAT) student, who considered herself "curious" and hard-working," "thought that [she] was going to be a teacher until junior hig..." She became "real close" with her "excellent teachers" in chemistry and physics. Her chemistry teacher "started school at 7:00 a.m. so [her class] could have a 2-hour lab" and she had a "great teaching assistant" experience with her physics teacher. She asserted that they "recommended engineering . . . not English or teaching." While her science teachers did not explicitly tell her not to be a teacher, others did so with their students. For example, a male Hispanic chemistry major (3.5 GPA and 1100 SAT) noted that his chemistry teacher, whom he admired, told him specifically "not to be a chemistry teacher." This student, who appeared insecure about his Hispanic heritage, stated that what he was "looking for in" a degree and an occupation was "respect." At an early age he eliminated various occupational choices by considering their disadvantages and limitations. They included:

> Music was a consideration, but I wanted stability . . . . I never considered being a politician because of what people think of you . . . . I never considered being a doctor because a lot of problems die on you . .

> . . Police work is noble but too dangerous . . . . I didn't consider being a teacher or a custodian because there is no glory and also no pay.

For other students, teacher influence on degree choice ranged considerably. Older female students claimed they were advised (by their teachers and guidance counselors) not to go into math or science-related fields even though they "always loved math," or did "real well in science." Younger students from urban areas said that "teachers and guidance counselors didn't influence much of anything" because their high schools were so large. Yet, teacher influence appeared to have a very subtle, yet powerful impact on a student's degree choice. Consider the emergence of a chemistry student's degree choice:

> I had an X-ray on my hip in the ninth grade and I thought it was interesting. I thought I'd major in biology, go to medical school, and become a radiologist . . . . . After taking biology in high school, I discovered that it was too matter of fact . . . too cut and dry . . . . It seemed to stop--I guess because I was taught just the facts [about biology] in high school . . . . Now, the way chemistry was taught made it seem like so much more.

Career Aspirations and Expectations

The career aspirations of these students at Citrus State varied considerably. Chemistry students aspired to such fields as pharmaceutical research, environmental engineering, "bench work" in industry, professorships, and cancer research. Two physics students were interested in solar and nuclear engineering. Business students sought careers in accounting in a small firm, self-employment, and working in "good-sized companies with good benefits." Engineering students said that the "space program," working "in a company where [they] could feel professional" (meaning "not having to work when you don't have to"), and "working in company where

[they] could feel free to produce 100 percent." A black female electrical engineering major (2.9 GPA and 825 SAT) noted:

> I want to be successful . . . . You know, continue school and maybe get a Ph.D. . . . I want to be able to understand (electrical engineering) better . . . maybe do research.

Many of these students appeared to develop expectations from various employment and student internships available throughout the community.

It was evident for most of these students that they aspired to "help someone" in their careers. Yet, this pattern was more evident for chemistry majors and least evident for business majors. Even the chemistry major noted that he wanted "to make a contribution to mankind" while still being able to "live in a life style he was accustomed to." Recognizing his problem of wanting to maintain an upper-middle-class life style, this above-average chemistry student (3.2 GPA and 1200 SAT), who was attracted to science because he had always "liked brain teasers," said that he "might go into business" since his "father would support [an enterprise] if it looked good." Nonetheless, he intended to enroll at Columbia University to work on his Ph.D. and hopefully would work with a foundation upon graduation. Another above average chemistry student (3.3 SAT and 1120 SAT) intended to go to graduate school to get a job in research biochemistry (as a professor or in government) so that she could "work on diseases" in order "to help people." A very bright chemistry major (4.0 GPA and 1480 SAT) intended to "work under a Ph.D. for a while in a research environment," but then "chemistry would be put aside." She said that she "wanted to stay home and be a mother" because that was "where her heart was." Later, she would "take her family with her so [she] could do mission work in the Far East."

Physics majors wanted to "enjoy what [they're] doing," do their "own

type of thing," and do "good things for the environment." Engineering majors tended to want "to help people solve design problems" and "add to their field of knowledge." Although some engineering majors were planning to go into sales since they were "more into the money," this was not the case with one of the brightest of these students (4.0 GPA and 1400 SAT):

> Money doesn't influence me very much . . . . I didn't go into engineering with that in mind . . . . If you like what you are doing, money is not the important thing . . . . I'm curious . . . I like to learn . . . . I plan to work with NASA designing computers . . . . I want to make a difference . . . [and] have work that is interesting, challenging, and that I keep learning.

Although most business majors (especially the average-achieving ones) appeared to be somewhat mercenary about their career aspirations, this was not the case for the brightest of these students. One student, a former "burned-out" nurse, was 45 years old, and had a 3.94 GPA. She chose accounting because she was "always good in math." She claimed that she "would like to teach" since she "would like to be able to inspire people." But, with "an oversupply of teachers in the area," the "problems of [teacher] certification," and "being tied down to the area because of [her] husband's business," she intended to find a job with "a medium-sized firm," and do a "variety of accounting . . . it can be dull if highly specialized." She emphasized the problems of stress in "Big 8" accounting and that she "would not get rich" in the smaller and "slower-paced" firms in which she intended to work. She concluded:

> Give me an education degree and a job in [the area] . . . . I might be happier teaching history . . . . It's more rewarding. I don't know if it will be rewarding to save some jerk $1,000 on his tax returns.

A number of students mentioned that they wanted to move into management. This career expectation seemed to be related to their previous work experiences or present student internships in local industry. A male

chemistry major noted that management was the "only route to make decent money in industry." Given his past experience as a "bench chemist," he stated that "in industry you need that piece of paper [Ph.D.] to advance . . . (in many cases) you need an M.B.A." Because one student had two years of experience in industry, he expected to start back at $21,500 ($17,000 otherwise), finish graduate school, then "go back to the bench," work "40 hours [a week]," and begin earning $30,000. He continued:

> There are many Ph.D.s in industry that don't desire management . . . . They put in their 40 hours and make $30,000 - $35,000 . . . . I am not that type of person who could stand someone looking over my shoulder . . . . I am going to get my M.B.A. [at night], get off the bench, and do my own thing.

Other students noted that management was "just a matter of moving up." These students could "work well with people," "people could take directions from [them] without it sounding like an order," and they "wanted to be in charge." A number of students did not want management. A bright engineering major (4.0 GPA and 1500 SAT) noted that he "didn't want all of the authority." An above-average chemistry major (3.3 GPA and 1120 SAT) claimed she would "like to work as a professor," because "money was not that important," and she "wanted to do something [she] liked." Also, the flexible hours of a professorship would give her much more time to "stay home with her children." Similarly, the older business major related her impressions of the problems of young women in accounting and rearing children:

> When they get into their late 20s, they will begin to drop out for a while . . . . Many will drop out and won't come back . . . . Some women can mix careers with children--but when your child is sick at home, you are at home . . . . When your child is playing in Little League games, you are there . . . . A lot of accounting jobs are 9 to 9, travel, weekend work, and high pressure . . . . There is quite an attrition rate in Big 8 accounting--a lot of stress.

Money was not a major consideration in these students' career expectations. It was more so for male business and chemistry students. Not surprisingly, the higher socioeconomic background of the male student, the more salary they expected in their careers. Lower-middle-class students expected $30,000, upper middle class expected $50,000, and upper class expected $100,000 at the peak of their careers. All students expected "increases" in their salaries, "comfortable life styles," and the ability to "put their children through school." A common expectation for these students was to "be happy" and "enjoy life."

Career Decisions Not To Teach and Public School Experiences

Although it generally was perceived by these students that teachers were "overworked and underpaid," low salaries and the lack of career opportunities did not appear to be "major factors" in their choice not to teach in the public schools. Those few students who rated money as a "significant" disincentive to teach tended to underestimate the salaries of beginning teachers. They also were more likely not to see themselves as teachers. A male chemistry major (3.0 GPA and 1250 SAT) noted:

> I wouldn't want to do it . . . . Money is a factor, an important one, but I am not the teaching type of personality and I am not able to explain things well.

This student, who had upper levels of management in industry as a career expectation, described the differences between "explaining things" to public school students and to the "team of chemists" he hopes one day to manage:

> I might have to explain things well to those working under me, but I don't see it as being the same. The chemists whom you are working with are very specialized and have common backgrounds . . . . Kids in the public schools are not specialized. They come from too many different kinds of backgrounds.

The viewpoint of this student was evident for other students as well. In fact, intolerance was much more evident for those students who were more "highly tracked" throughout their public school experiences. It appeared to be more than just "being in advanced placement courses" and "hanging around only those in calculus and physics" in high school. Not only were some students only in courses with "select" classmates, others were isolated since they "didn't hang around with anyone" (or "didn't get involved") and apparently were alienated from school since they "weren't one of [the social elites]." These students were more likely to be intolerant of those unlike themseleves and more surprised to address questions regarding the working conditions necessary for them to consider teaching as a career. These students had not considered teaching as a career.

The students' experiences as public school (and college) students had other implications in their career decision not to teach. A chemistry major (3.3 GPA and 1120 SAT), who would like to be a professor and "didn't want industry" noted:

> I know how bad teachers can be . . . both from high school and here (Citrus State) . . . . Many teachers don't know how to bring it down to your level . . . . I've learned so much I couldn't go teach what I learned in the first year . . . . I've always wanted to do something for the community . . . . It would be great to go back to high school and make it so kids would want to learn chemistry.

She noted that many of her peers in chemistry "would like to teach--mainly because their high school chemistry wasn't taught well." She continued:

> I have a friend who fought with whether or not he should teach . . . . Finally, he went to chemistry education. He's in his last year . . . . He wants kids to make it. Parents and kids don't appreciate education and they don't understand [the value of] what they are getting in the schools. Kids smoke and drink in school . . . . But, my friend can relate to them.

> A lot of teachers forget what it is like to be a student.

A physics major, who intended to be a solar engineer, also talked about a friend who teaches in the public schools and why she chose not to teach:

> The guy I'm dating teaches physics in high school and is well-suited for it . . . . He has fun for one thing and has no ideals for another career . . . . He has taken one-half the courses in physics that I have had, but he's well-qualified . . . . Anyway, he'd be frustrated doing something else . . . . Well, for me, I was going to teach high school, but I thought about the discipline problems in the schools. You might not have many discipline problems in physics, but I know I'd be stuck with some basic classes . . . . Even if I taught for a while, it wouldn't be for a career . . . . It would be frustrating to teach at that level--if you teach high school physics, all you know is high school physics . . . . [However], it is a worthy profession.

A bright engineering student (4.0 GPA and 1400 SAT), who wanted to work on the space program, noted similar concerns:

> To tell you the truth, up until high school I wanted to be a teacher . . . . But, then I realized I would get bored . . . . I remembered being bored in my ninth grade Algebra II class . . . . I would need to teach more than Calculus I or Physics I . . . . Plus, students don't care.

She continued:

> Pay is not a big thing for me . . . . I've never hurt for money. However, I hear a lot about paper work, counseling, and the red tape with the school system--teachers are not free to teach.

Another bright engineering major (4.0 GPA and 1500 SAT), who was "not challenged" in the public schools and later went to a private high school with only 15 students, noted his concerns:

> I would need the flexibility to teach students what I wanted them to learn . . . . I wouldn't teach those who are just blowing off . . . . I would want some job security--if my teaching style didn't work. I would accept input and change . . . wouldn't want to be fired.

When asked how much he would need to be paid if schools could meet his

conditions for teaching, he responded:

> $15,000 . . . if I enjoyed it, you wouldn't have to pay me as much as if I didn't . . . . I would have to like the students.

Interestingly, many of these students who noted the "incredible importance" of teaching invariably claimed that they would teach for less money than they would make otherwise in their prospective careers in industry. However, certain working conditions would have to be met. Some of these conditions would appear to be very difficult for schools to change. For example, consider the concerns of an average-achieving engineering student (2.8 GPA). This student, who had earlier stated that he did not want to go into the "sales part of engineering" because he perceived himself as a "doer," not a "seller," noted what had kept him from being a teacher:

> It's hard . . . . You have to put up with someone else's child . . . . You have to sell yourself to students and meet them half way--not like in college . . . . It is all how you give it to them in college.

When asked what would have to change in public schools for him to teach, he responded:

> I wouldn't want to have to reach difficult kids . . . . I would get too frustrated. I wouldn't want to be a parent to them.

When asked if anything else needed to be changed, he responded, "That is it." When asked about salary, he said:

> If you could make those changes, then the regular salary would be fine . . . . Pay is important, but not as important as being satisfied with your job.

Summary of Citrus State University

The career expectations of these students at Citrus State were influenced considerably by their backgrounds, the availability of local industry that provided internships, and their public school experiences.

Parents, early life experiences, and teachers influenced career options. Many rural students chose to attend Citrus State because it was close to home. The plethora of available student internships in industry provided understanding of many career options and life styles that might not have been considered. In turn, these students in chemistry, business, physics, and engineering were realistic about the promises and limitations of their career paths. For example, it was well understood that a B.S. degree in chemistry would not take one very far in industry.

While male business students were more mercenary about their careers (they tended to come from a lower-middle-class background), others in chemistry, physics, and engineering were not. Many wanted to "contribute to mankind" while still doing their "own type of thing." While bright students aspired to management, the brightest "didn't want all of the authority." Family responsibilities made a difference to female students.

The public school experiences of these students at Citrus State influenced the shaping of their decisions not to teach. But, the influences tended to be subtle. They learned through their upbringing, parents, high school teachers, and college professors particular attitudes and values which do not particularly mesh well with those of today's public schools. Unfortunately, many above-average and high-achieving college seniors in the sciences who want to "make contributions to mankind" do not believe they can do so in the public school classroom. Discipline problems and unmotivated students weighed heavily in their decisions not to teach. But more powerful than these factors were their intolerance of diverse students, problematic parents, counterproductive (in their view) administrator attitudes and behaviors, their recognition that they "tended not to teach well," and their belief that they would be "bored" teaching.

Frequently, "pay [was] not a big thing." How else does one explain a very bright chemistry student (4.0 GPA and 1500 SAT) not considering teaching in the public schools, yet foregoing a promising career in chemistry for family and missionary work overseas?

SOUTHERN UNIVERSITY

Southern University is a public research institution that serves as "the flagship" for a state-wide system of higher education. The university serves 17,000 undergraduate men (51 percent) and women (49 percent). Of these, 3,400 are part-time. The average age of undergraduates is 22. There are a wide variety of programs that serve 7,100 graduate students. Southern University, founded in 1801, has professional schools in pharmacy, medicine, and law. A 1982 freshman student profile showed that: 79 percent were from in state, 57 percent lived in college housing, 43 percent commuted, 18 percent had minority backgrounds, 2 percent were foreign students, and 60 percent were ranked in the top 20 percent of their high school class. A 1983 undergraduate profile showed that: 13 percent chose the arts and the humanities; 7 percent, health or pre-medicine; 16 percent, business; 5 percent, education; 7 percent, engineering; and 17 percent were undecided. The undergraduate education program was recently eliminated at the University.

Southern University is located within a "thriving metropolitan area" of 400,000 people. The city is the seat of both state and county governments. The campus is located "just blocks from the historic State House." With significant increases in commercial and industrial development in the area, the University stresses the "ample opportunities for off-campus internships or employment for [those] students who need to work or who want career-related employment while they are still in school."

The Students

Eighteen students were interviewed: five math majors, three physics, five business, three engineering, and two sociology. Fourteen students

were white and four were minority. Ten were male. The students' scores on the SAT ranged from 750 to 1420, and their GPAs were from 2.0 to 4.0. The two sociology students were deemed the "top two in this year's graduating class" and had 4.0 GPAs and were older (29 years of age). The rest ranged in age from 21 to 23. Many were from rural areas or small towns in the state and their parents tended to have either blue-collar occupations or were salesmen, educators, or small business owners. Many reported that they "won't return" home [after graduation] since one "can't stay in a small town and make a living." A black female major noted that "people don't respect you if you return home." Southern was selected by these students (and those from the city) because it was "close to home," but "not too close." Some noted that they chose Southern because their siblings had attended. Students from out-of-state chose Southern because of "good programs," a "great party atmosphere," or because other universities would not have met their "personal or spirtual needs." The parents of urban students tended to have upper incomes and professional occupations such as nuclear physicists, certified public accountants, and marketing executives.

Degree Choice

These students were influenced primarily to major in their respective fields by either their parents, their teachers, their "fascination" with the subject matter, or just unique experiences. Insurance salesmen influenced their children to be math majors and actuaries. Marketing executives discouraged their children from majors with "no money in it." With regard to the latter, a bright female business major (4.0 GPA and 1300 SAT), who "rebelled" against the values of her prep school that "trained well-educated ladies and housewives," said that she "identified strongly"

with her father, but "want[ed] to be known for more than being Mac's daughter in the marketing industry."

Rural students were influenced by their teacher(s) who told them to "try something challenging" and to "be prepared because there was no good work back" in their home town. However, one rural student had a unique experience that greatly influenced his degree choice. This average physics student (2.5 GPA and 970 SAT) extolled his experience at a National Science Foundation summer workshop for rising high school seniors. He was taught by a "fantastic professor" who was able to "explain the different areas of physics without going over my head." He felt that this experience "taught [me] a great deal about what [I] could do" (teaching was not included) and convinced him that "things would be going toward the sciences"--jobs that would allow him to "move away" from his rural home town. He noted that the "social sciences always bored me to death" since he "liked the more tangible subject matter."

Other students were "sparked" by the "total enjoyment" of science or their "continual desire to understand what makes things tick." One student, a bright physics/math major (4.0 GPA and 1420 SAT), epitomized this path to her degree choice. She was attracted to math and physics because of the "completeness in them" and her belief that these subjects were "pure and logical" where "something necessarily follows others." Although her father was a nuclear physicist, she claimed that she was "extremely independent" (in her degree choice) and wasn't influenced by her parents or her teachers, whom she considered her "closest friends" in high school.

Finally, others simply had unique experiences that "led" them into their field of study. For an average male business student (2.0 GPA 750 SAT), it was "working full-time in the mill since he was 14 years old" to

help support his family that convinced him to major in business. A major in business provided him with an "opportunity for leadership." This was important since he recognized early in his life that he was "raised with responsibility," was "not a follower," and "wanted it all." On the other hand, for a bright engineering student (3.9 GPA), it was an "Earl Knightendale" course that convinced him he "wasn't a failure" and that he could be better than the "average old Joe" which he considered himself in high school. The word "engineer" had always "sounded good to me." Subsequently, he "studied calculus all day" to prepare for his field of study during the summer before enrolling into the University. However, it was his "real good math teacher" who gave him help during this time and encouraged him to major in engineering.

Career Aspirations and Expectations

The career aspirations of students at Southern included actuarial work and basic accounting; space shuttle or military physics; upper levels of management in business, research and industrial engineering; the ministry; government work; and public school teaching. Rural math and business students were attracted to actuarial work since it provided a "comfortable living," a "house," and "financial security." These students recognized themselves as "problem-solvers" and "enjoyed working with numbers." They hoped to start at $20,000 and earn at least $40,000 toward the end of their careers. However, the common aspiration and expectation among these students were to "be happy" and "not rich, but comfortable." While some noted that graduate school was a possibility (in business), they tended to think that they "could not deal with" advanced study in mathematics.

Physics students claimed that careers in the military provided

"challenging" and "guaranteed jobs." Noting that "the pay would not be great," they felt that the job would be "prestigious" and afford "experiences that business and industry wants." There was a tendency for these physics students to be hesitant about entering industry since, in that environment, one "doesn't always have control over one's work" and "can spend 4 years on a project and not get credit for it."

Those business students who aspired to upper-level management noted early life experiences as sources of their goals. For some, it was the "highly successful" father in a similar area of business. For another, it was being the "baby of seven children" in a "poor" and "broken home" which pushed him to be a "C.E.O." These students expected to put in many hours of work--especially in the early stages of their careers. A bright business student (4.0 GPA) claimed that she will start (as a "management trainee") at $16,000 a year for a Washington, DC, clothing store while working "6 1/2 days a work and 12 hours per day." An average business student claimed that he will start at $21,000 a year for a computer firm and in the first 6 months he will work (as a systems analyst) "14-hour days Monday through Saturday and 7 hours on Sunday." Work appeared to be what they like to do best. The 4.0 GPA student noted:

> Working gives me a routine . . . . I did my best academic work while taking 18 hours and working at a department store 25 hours a week . . . . I can't stand not to be working.

Other factors influenced the career expectations of these business students. Some females stated they would have to "slow down <u>if</u> they ever had kids." Males stated that many family responsibilities would be "handled by wives who didn't work." Those who came from high-income backgrounds noted that they "would take a step down [financially] when they graduated" and their goal was "to go further" than their parents. Those

who came from lower-income backgrounds noted that they "would finally make some money" and their goal was "the American Dream."

Engineering students aspired to work either in research or industry. Research students considered themselves as "problem-solvers" and "wanted to be the very best" because they "couldn't settle for anything else." They considered a research career as most suited to their career aspirations since they "dread what many engineers have to do." For them, "the definition of engineering gets fuzzy" in industry because of the "tons of paper work" and the "monotonous work." While these research students noted that they were "not worried about" or "crazy over" money, an "industrial" student simply noted:

> I've worked hard in school . . . . I deserve a good income . . . . I don't want a million dollars, but if I'm doing nuclear work, I expect $40,000 after ten years . . . . You are under a lot of pressure.

While both sociology students felt a personal need to "work with people," one anticipated a career in the ministry and the other, possibly in government. Their career aspirations and expectations differed greatly. The prospective minister noted that he "wanted to work with those with a serious need." He intended to "do mission work in South America" after the seminary and before he "pastors for a small nontraditional church." For him, a traditional church represented "money . . . a big house . . . and two cars." He recognized that he was "impatient with people who have everything and didn't give a damn about anything." The prospective government worker noted that she wanted to work with "deviants because [she felt] sorry for them." She said that she "didn't want to be rich . . . just happy." However, she felt she was unlike other sociology majors who chose social work as a career:

> I'm more qualified to do something better than that . . . . Maybe, I'll go to graduate school and major in demography--I could teach at the college level . . . . I could get involved with what I am doing and would enjoy college students.

Two students intended to teach in the public schools in the future. Both were female, had parents with experience in education, had "great" experiences in high school, and identified "very" strongly with their science teachers who they knew personally. One rural math major (3.0 GPA and 1070 SAT) explained her careers as an actuary, a wife/mother, and a teacher:

> I don't want to teach right now . . . . I want to use my statistics and math background--an opportunity I won't have in teaching . . . . I guess this is why I want to teach all calculus [classes]. But, you can't teach all calculus and work in [this state] . . . . This is how I have it planned: My boyfriend will be in medical school, and he wants to practice here. When we get married, I'll work [as an actuary] and help him through school. Once he is out, we'll have children. I'll stay home [with them] until the youngest is in kindergarten. At that point, I'll teach--it will fit my life style . . . . I'll enjoy teaching because I like to see a young person grasp an idea--to catch on. Plus, it fits--you know, the hours are good.

Further, she described the differences between the work of an actuary and one of a public school teacher:

> If you are an actuary, you work 9 to 5--it's cut and dry. It's good work if you are single and you want room to move up. You work with people with your own background, education, and age.

On the other hand:

> Teaching is suppose to be a 7:30 to 3:00 job, but it is not so cut and dry. It's a great job if you have a family--hours and vacations and such . . . . But, you work with those not on your level. Being a teacher might be easier, but you have to have more patience . . . . It's not that I'm in it for the money, but it might be easier to teach right away if I would be paid as much as I would be as an actuary.

Although her mother is an elementary school principal, she did not know

how much teachers earn.)

The other student oriented toward teaching was a bright math/physics major (3.9 GPA and 1420 SAT). Her father is a nuclear physicist, and her mother is a psychometrician (who "did her student teaching," but decided to "stay home" with her children until they were grown). She indicated that "after my kids come, I really want to teach in the public schools." She described her career path:

> I have been offered a job with Martin-Marietta to work on life support systems [for the space shuttle] . . . . I want to get my M.S., my Ph.D., and on the space shuttle before I'm 30-35 years of age. Then, I want to have babies and stay home for a while. I really liked the time my mama spent with us . . . . Then I want to teach because schools are deficient . . . . Students have not been taught. It is a commitment job--it's not the money . . . . I'll probably end up teaching those who don't have the background to learn what I want to teach. But, I'll do my best . . . . I don't really want to teach college because by the time they are that age the damage is already done . . . . I like people. I'd enjoy it.

Career Decisions Not To Teach and Public School Experiences

This same math/physics major, who was contacted by Martin-Marietta because of her "good grades, broad background, ability to learn quickly and be creative," discussed why other bright students like herself do not choose teaching:

> Salary might have something to do with it, but I doubt it. What would be most important would be to find a way to make the teaching load less and more like a college professorship. Maybe, you could let them work part-time in industry. You see, others don't go into it because of their intellectual goals.

However, after reflecting on her recommendation for attracting bright math and science teachers into teaching, she noted the ambiguities that existed between the problem and the solution:

> It takes so much mentally and physically out of you to teach in the public schools. I can't see someone having the time or the energy for research. Plus, students need role models--somebody there all the time.

Previously, she noted that her "closest friends" in high school were her teachers. They taught her "a great deal." In fact, they taught her so well that she "didn't get to any new material (in the University's Honor College) until her sophomore year." Her teachers were "friends" and were "respected." But, more importantly, they were "always there"--before school, during study hall and lunch, and after school. This was when the "most fertile conversations" were held between her and her teacher-mentors.

The students that recognized that "teaching was not for them" believed that their "impatience" with children or adolescents had more to do with their unwillingness to teach than any other factor. While male business students noted "low salaries" and having to be "saintly inclined" as disincentives for them to teach, others said they would teach for less money than they would be otherwise earning in industry if they would become "patient enough" or if "kids were not as wild as they are now." For example, a black math major (3.0 GPA) noted that she "could be satisfied with less because I would be helping people." A rural, white physics major (2.8 GPA) claimed that "$20,000 - $25,000 would be enough" since you "would be able to possibly influence the next Einstein." A rural black business major (2.8 GPA), the daughter of a forklift operator, had thought about teaching as a junior high school student, but was later discouraged by her teachers and professors. She noted:

> I came [to the University] and everybody said [teaching was] not for me . . . . Everybody says they don't get paid enough . . . . My teachers always told us that--and my professors, too . . . . However, if I had the

patience, I'd go for it right now.

When asked about the low salaries of teachers, she responded:

> Public school teaching is from the heart, not the paycheck . . . . It would be a little more fun (than being an accountant) . . . learn about kids . . . . I'd like to try it--just no outside work.

While the above-mentioned students comment on "fun" and "real good" high school experiences, others did not. Sociology and business students said that high school was a "drag," it "was boring" or that it was "kind of non-existent since [they] were always working." These students had difficulty conceiving of themselves as teachers. While it appeared that having a positive high school experience was a necessary, but not sufficient factor in these students' willingness to teach, other factors also stood out. Consider the perceptions of a bright business major (4.0 GPA and 1300 SAT), who has challenged herself to be a better marketing executive than her father:

> I wouldn't want to do it. I have a lot of friends who teach in the public schools--they put up with a lot, they're depressed a lot, and not challenged . . . . Teachers are compliant people . . . . My friends think I am too talkative, they think I'm crazy and I go out too much--I think they're jealous.

When asked what it would take for her to teach, she responded:

> First, you need to change [students'] parents because they're annoying and don't care. Second, you must be able to bring in new ideas--which means you must change principals who have nothing but old fashioned ideas. Third, schools must begin to have a learning atmosphere.

When asked about money, she responded (she plans to work 6 1/2 days a week for $16,500 a year in Washington, DC):

> I guess I'd like to make as much as I'd get in anything else . . . . However, [if you changed the schools] I'd do it for less. You're asked to do what you've already done. More importantly, I'd enjoy it . . . . You see, I'd be good . . . . I'd challenge the kids--they

couldn't do what they wanted.

The perceptions of a bright engineering major (3.9 GPA), who had challenged himself to the "best" mechanical engineer he could be, were:

> I see it as a big responsibility--preparing [children] for the future . . . . It takes somebody who really wants to do it . . . . There are talented people who teach high school.

However, he continued:

> I couldn't see it as a career--the way schools are set up here . . . . If you separated the clowns from the others--I'd teach advanced placement . . . . It might be ok . . . . It would be satisfying to help people in the early part of their lives . . . . At times I, thought I could show people some things. Math and physics would be fun if you had good facilities. However, I am not sure of the administration . . . . I would want to do what I thought was best.

When asked about money, he responded (he was presently going to graduate school and expected to start at $25,000 and then upwards to $40,000-$45,000 in the latter stages of his career.):

> Enough to keep a life style . . . maybe not as much . . . . I am not very material oriented . . . . Maybe, under the right conditions I'd teach for five years.

Summary of Southern University

The career expectations of these students at Southern were influenced by their backgrounds and parents, public school teachers, and pursuit of intellectual goals. While urban students wanted to live lives much like their parents, rural students wanted to do just the opposite--i.e., live like the parents of urban students. For those who had positive public school experiences, there was a tendency for their teachers to reify (for urban students) or mold (for rural students) their career aspirations and expectations. In addition, bright science students sought their major areas because of their "completeness" and their "pure and logical" form.

Similarly, average science students rejected the social sciences since they "lacked tangible subject matter" and would be "boring."

These students aspired to and expected a range of work environments and salaries. Those with higher GPAs and SATs tended to place less of a priority on earning the top dollar in their respective fields. For these students, being the best would not necessarily mean earning the most. Those who were more inclined to "earn the most" were less inclined to want to "help people." Wanting to help people was not enough for these students to consider public school teaching; albeit one math and one physics major indicated they would teach in the future. Parents, discipline problems, unmotivated students, traditional administration, and the recognition of their personalities kept many of these students from considering teaching as an alternative.

STATE UNIVERSITY

State University is an "arts and sciences" institution that serves 5,000 undergraduate men (39 percent) and women (61 percent). Graduate programs in biology, business, the social and physical sciences, education, computer science, library sciences, mathematics, and home economics serve another 800 students (about half are part-time). State University, historically a black institution founded in 1910, has a law school which serves a variety of students in a rapidly growing metropolitan area. Although the undergraduate student population is primarily minority, the administration seeks to attract a diverse and talented group of students to the University. A 1982 freshmen student profile showed that: 84 percent were from in-state, 79 percent lived in college housing, 21 percent commuted, and 90 percent had minority backgrounds.

State University is located within a city of 150,000--a city that is known for a prestigious private research university and its medical and research community. Once a trading center for the farmers of surrounding rural areas and an essential part of the state's farm economy, the city is known now for being part of a multi-city area that is a hub of high-tech industry in the Southeast.

The Students

Six students were interviewed: one physics major, two chemistry, two business, and one math/computer science. Four were female, and three were minority. The students' scores on the SAT ranged from 680 to 1250 and their GPAs from 3.0 to 3.9. The physics student (3.9 GPA), in preparing for graduate work, had scored 1390 on her GRE (with a 730 on the analytical section). Three of the students were within the traditional college-senior

age range and came from rural or blue-collar backgrounds. Of the other three, one was 27 (the physics major who was originally from Florida and had worked painting houses and preparing income tax returns after graduating from a "very academic boarding school in India"); another was 26 (a business major who left his blue-collar background in Brooklyn, New York by joining the Air Force for 4 years); and the other was 24 (a chemistry major who was originally from Baltimore, had trained to be an airline pilot and was presently a flying instructor 25 hours a week).

Students from rural backgrounds had parents who were employed as a receptionist, a nurse and a farmer and a housewife. Students from urban backgrounds had parents who were employed as a hospital administrator, a housewife, an attorney, a technician in a "high-tech" industry, a mechanic, a postal clerk, and a longshoreman. All of these students chose State primarily because it was "home," they "had relatives in town" and "big" research universities were "too impersonal." At larger universities, one had "no chance to get to know the instructors and no instructor pushed or motivated" them. For one business/accounting major, her husband's job as an electrical engineer brought her to the city. She had applied to the state's prestigious university, but "did not have enough community college experience to transfer," and the state's other major research university was "too far." (Note: The prestigious university that she wanted to attend was approximately 10 miles from her home and the other state university was approximately 20 miles away.)

Degree Choice

These students generally were undecided about their choice of major prior to entering State University. Science majors noted that they had

"always loved" or were "always good" at math and science. However, for the physics (3.9 GPA) and a chemistry (3.75) major, their college professors were influential in molding their degree choice. The physics major noted that "after my first course, they talked to me about entering the department because I had done really well." For both her and the black female chemistry major, "research with their professors" helped guide them into their degree programs and ultimately, their careers. For the black, male accounting major (3.0 GPA), it was his freshman "work-study" in the School of Business that taught him about good job prospects, an expanding career field, and the "excitement of the business environment." In addition, one student, who was a legal secretary at one time, said that she "always wanted business," and another stated he "always loved computers--having three or four of his own." A white, female chemistry major (3.2 GPA and 1220 SAT) said that "chemistry was fascinating" for her, "easy," and "didn't require papers."

Four of the six students did not seem to have had much parental or teacher influence in deciding their degree choice. Although parents were "motivators," the students were virtually independent of teacher role modeling. In fact, these students did not identify strongly with either their public or private school experiences or their teachers. Students had difficulty recalling their best teachers or their characteristics. Most recognized that their public schools were "split" between those students who were academic and those who were "just there." They indicated that "some" of their teachers were "generally good," "showed some concern," and were "tolerant" of them as students.

Two students were influenced by their public school teachers. One, the computer science major, did identify with two of his teachers. This

black, male student (3.1 GPA, 1250 SAT), who attended an urban inner city high school for three years and a math and science school for gifted students for one year, noted that his pre-engineering teacher at the math and science school was "really rough" and "pushed him" to enter a science fair. Also, he stated that his computer science teacher at the public high school was "really good" and distinguished himself from other teachers by "putting the bad kids out" of the classroom. The other, a chemistry major, indicated that a "young" German teacher had been influential. The latter student did have a "pretty good" high school experience and "missed it." Undecided when she entered college, she knew that she "liked German, but there was no money in it." Subsequently, chemistry was chosen since it was "important to society."

Career Aspirations and Expectations

The career aspirations and expectations of the students at State included research, pharmacy, airline pilot, accountant, computer analyst. The physics student (3.9 GPA and 1390 GRE), had worked summers at Bell Labs and intended to do "basic research" after finishing her Ph.D. She expected that her career would include designing projects and doing "more of the thinking." She noted:

> I enjoy involvement in a project . . . always stuck away in a lab . . . I'm not there to be charming . . . . The possibility of discovering something is intriguing and motivating.

She looked forward to the "very flexible" working atmosphere of doing basic research and having the opportunity to "do strange things." Noting that it would be "nice" to "do research in different parts of the world," she reflected on the difficulty of being able to "work out" both a family and a basic research life style. However, marriage and family were only

"possibilities in the long run," and current aspirations focused on physics. Without physics, this bright 27 year old student "would be lost."

Two chemistry students also had high and different career aspirations and expectations. Although they were both bright students in their major, one (3.75 GPA and 680 SAT) indicated a "complete dedication to pharmacy." The other (3.2 GPA and 1220 SAT) aspired to "become a commercial airline pilot"--earning upwards to $100,000 a year. For the former, a black 22 year-old daughter of a longshoreman, her dedication was translated into the goal of "owning a pharmaceutical research company." Recognizing that there would be long hours of "technical work," she hoped to start in industry at $22,000 and "go to $35,000." She expected that after five years she would be taking business courses and after ten years, "building up my own firm." This ambitious student hoped to be married in three or four years--"choosing a mate that would take up the slack with kids." With considerable desire to "branch out," "contribute fully," "improve," and "advance" in her prospec- tive career in chemistry, there would be less time for her to spend at home. The other student, a white 24 year-old daughter of a computer technician and an attorney, had career goals demarcated by her aspiration to have a job with "high pay and low productivity." With no "real plans for marriage," she noted that "flying wouldn't necessarily conflict with having a family, but it certainly would not help."

A business major and a computer science major also have high career aspirations and expectations, while another business major was "not quite so ambitious." A black male accounting major had applied to five of the "Big 8" national public accounting firms and hoped to be earning $30,000 - $35,000 as a manager after five years. The expectations of working

overtime, having to travel, and working in both small groups and independently appeared to be appealing to him. Hopeful for an "expanding career," he noted that "job atmosphere was most important," and "salary came after that." However, he continued, "If you enjoy it, you'll get paid more because you would be doing well." The computer science major aspired to work at a large firm like Sperry Univac--programming for the space shuttle. He expected to start at $24,500, work flexible hours, and have "lots of benefits." If he didn't achieve this goal, he'd be "just as happy at a simple programming job." Working behind a terminal seemed to fit him since he pictured himself as a "loner" and preferred to work "on my own."

A white female accounting major, who was a legal secretary, "wasn't sure" exactly what she wanted in a job, but felt it would be "in industry . . . taking care of money." She "didn't want to be a CPA" since they "have to work 70 hours a week," and she "didn't want to spend all of her time away from home." She wanted to "work with people" and "get into management . . . depending on what was available." She indicated that "maybe going to graduate school" would be an alternative if she "couldn't find a job."

Career Decisions Not To Teach and Public School Experiences

These students at State University tended not to identify strongly with either their high school experience or their teachers. It was not surprising that they could "never envision" themselves as teachers or thought that "the last thing in the world [they] would want to do is teach school." Even those with positive public school experiences noted that they would want "higher pay," "more respect," and parental discipline of their children if they were to teach. One of these students, a black female chemistry major, indicated that she "would be a good teacher" since

she had "lots of patience," but "would be better at the college level" because "adolescents change so much." This student, discussed teaching and what it would take to get her to teach:

> Teachers are highly underpaid, but it is an important job . . . . You have to be dedicated . . . . The low pay is disgusting. The whole system is inside out. People who do the least work like the President get the most pay while physical laborers get the least.

With "more materials" and "more money," she noted that she "might" teach. However, parents would have to "attend seminars" so they would "know what teachers go through." Furthermore, parents would have to discipline their children since "kids are getting worse." A white female accounting major with positive public school experience, noted these problems about teaching:

> The majority of children are not disciplined at home . . . . It's just too much of a hassle . . . . Doing the same thing day after day--over and over . . . . I would never be a teacher--high school kids are so undecided, so unsettled . . . . There needs to be more emphasis on how important education is in later life . . . . Salary would have to be raised . . . . I remember what it was like when I was in high school. I just wouldn't like to get up in front of all those students to teach.

These students, who had positive experiences in their own public schooling, had perceptions of schooling that mitigated the possibility of their becoming teachers. Although perceived low salary was an explicit factor, so were others. These included the lack of parental guidance and student discipline, the belief that teaching was a mundane task, the behavior of adolescents, and the perception that teaching required one to interact with others as opposed to "interfacing with a computer."

For those students who had negative experiences in their own public schooling, these factors were exacerbated, and other factors were mentioned. The bright physics major, who was enthusiastically entering the

world of basic research, stated:

> I'm not good in front of people. I'd want people to be interested and it would really hurt my feelings if they weren't . . . . [Compared to lab work], I'd be bored to death doing the same thing over and over. In research, there's always something new--it makes me shudder.

She continued:

> If someone could convince me that kids wanted to learn . . . . I hear a lot about stupid kids who have behavior problems . . . . If someone could convince me I'd do some good [I might consider it], but how do you legislate something like that?

Furthermore, she asserted:

> If they could weed out the bad teachers--I wouldn't want to associate with them. I'd be frustrated if my colleagues weren't doing their job.

Finally, she claimed that "it might be rewarding if the students were motivated, but . . . I'd hate a safe and cushy job for the rest of my life."

Other students noted different factors. For an urban, black business-accounting major with a blue-collar background, the "low pay" of teaching was a primary disincentive. But so was his perception that elites fared better in the public-private school system; he felt that he couldn't "deal with the inequalites" among schools. A white, female chemistry student, who was attracted to commerical airline piloting because of "high pay and low productivity," simply noted what kept her out of teaching: "Low pay and high productivity."

Just as important to this student, whose mother had been a special education teacher and was now an attorney, were these reflections on teaching:

> The teaching is fine. It can be really rewarding, but with the bureaucracy and the petty politics, it's not worth it . . . . My mother had to spend so much time testing and processing paper work, and then manipulating the paper work so that the kids who needed the help

> got it. Otherwise, these kids would fall through the cracks . . . . The job itself could be ok. One-to-one [teaching] could be really gratifying, but conditions vary from school to school and there is so much you have to take home--I'm one who would get very emotionally involved.

Although it would take "more tolerable pay" (about $30,000), "more freedom," "more protection" so that "you don't have to cover your tail when making judgment calls," and "more motivated students" to get her to teach, one response, more than any other, appeared to focus on the crux of the problem:

> Flying is just cut-and-dried. If something is right, you know it right away, and at the end of the day, you leave it.

Summary of State University

The career expectations of these students at State were influenced more by the college experiences than students at other sites. While their backgrounds shaped their career paths toward business, research, and high paying jobs, their college professors appeared to have molded specific choices. This pattern highlighted the importance of college role models in the career choice of undecided students.

These students were influenced less directly by their public school teachers. The brightest of these students appeared to be less motivated by money and more by the challenge of the subject than the other students. The rest aspired to working hard and "making it big" in accounting, pharmaceutical research, computer programming, airline piloting, and business.

These students were not interested in teaching for a number of reasons--low salaries, lack of parental gudiance (for their students), student discipline, and the ambiguity of classroom life. For the brightest

of these students, it was dealing with students, having to work with incompetent colleagues, and her inability to work "in front of people." The bright chemistry student, who was interested in becoming a pilot for a "high paying and low productivity" career, illustrates the often unrealistic aspirations and expectations of college students. Teaching may very well be perceived as unchallenging, mundane, too bureaucratic, and ambiguous. But so are many other occupations. Aspirations do not always fit expectations, and expectations do not always fit reality. For these student, such perceptions are playing a major role in their aspirations and expectations and their decision not to consider public school teaching.

JOHNSON COLLEGE

Johnson College is a four-year religiously affiliated liberal arts institution that serves 1,500 men (66 percent) and women (33 percent). Johnson, founded in 1837, is affiliated with the Presbyterian Church. With 65 percent of enrolled freshman in the top 10 percent of their high school class (and 50 percent in the top 5 percent), admission to Johnson is selective. A 1982 freshman profile showed that: 34 percent of the students were from in state, 100 percent lived in college housing, 5 percent had minority backgrounds, 1 percent were foreign students, and the average high school GPA was 3.6. A 1983 undergraduate profile showed that: 22 percent chose the arts and humanities; 30 percent, mathematical and physical sciences; and 43 percent, the social sciences. Furthermore, 70 percent of Johnson's students enter graduate or professional programs upon graduation.

Johnson College is located in a rural community 20 miles from a major metropolitan area of the state. The city provides the students who attend Johnson the opportunity to have the "night lives" with which they are familiar.

The Students

Ten students were interviewed: three physics majors, three biology, two English, and two psychology. All students were white, and six were male. The students' scores on the SAT ranged from 1200 to 1400 and their GPAs from 3.0 to 4.0. All were traditional college-age seniors. Eight of these students were from urban areas (seven from the Southeast and one from Colorado), and their fathers were either engineers, physicians, or professors. While most of their mothers had college degrees and had been

employed in the past, they presently tended to be at home or working with their husbands, i.e., "playing vice-president in dad's company." The two students from rural areas had parents who were a minister and teacher and a manager and librarian. These two students came from more "modest" backgrounds than the other eight, whose backgrounds were more like "the standard" at Johnson. Alluding to the number of students' fathers who were "well-to-do" physicians or lawyers, one rural student said, "You ought to see all the madras pants on Parent's Day."

Urban students chose Johnson primarily because it would "provide a well-rounded education," they had attended a summer seminar there while in high school, their "brother had attended," or "the school was elite, yet small." Rural students chose Johnson primarily because it was small, close to home, affiliated with the Presbyterian Church, and "highly recommended."

Degree Choice

Physics majors chose their major primarily because they "had always been fascinated with structures," "loved building things," or had "seen dad do engineering for so long." Biology majors were influenced by early life experiences related to medicine or "always liking science and math" since it was "easy." Although science and math were easy for these students, they "had to work at English." A biology student (3.0 GPA and 1220 SAT) expressed the desire to "follow his father's footsteps" with a major in biology and career in medicine. A physics major (3.3 GPA and 1200 SAT), whose father was a minister, noted:

> I had thought about the ministry. But, I don't have the patience to deal with all those people in the congregation . . . . I couldn't get up in front of all those people and preach every Sunday.

Although devoted to his religion, his reasons for this choice of major were

his "always loving working with mechanical stuff" and "restoring old cars since the seventh grade." For him and other science majors, inherent characteristics of their disciplines were attractive; physics and biology were "stimulating," had "variety, were tangible, but still had many unanswered questions."

English majors were influenced to major in their area because they had "always loved reading" or "had a dynamite English teacher" in high school. One student (4.0 GPA and 1400 SAT) emphasized the influence of her parents (a professor and a choir director), and another (3.2 GPA and 1230 SAT) emphasized the influence his English teacher who "drew the class to a more professional level." However, the English major was the "antithesis of what my father--a physician--wanted." His father wanted him to "join his practice back home in the city." This student was "unsure of what I'll be doing next year--maybe teaching in a private school."

Psychology majors were influenced by their parents who were psychologists or by the realization that it was "important to know how people think and act before one deals with them." A student (3.8 GPA and 1350 SAT), whose father was a civil engineer and her mother a manager, stated that her degree and career choice was more of a process, influenced a great deal by her public school experiences. She noted:

> When I was junior high and high school, I thought I might be a teacher. I had these real neat teachers--who were active thinkers . . . . One of my best was in history--he took time to really sit and talk with us during lunch . . . . I thought teaching would be neat--a thinking job . . . dealing with problems . . . moving around and not just sitting in an office.

However,

> But, then I got into math, and I thought I was going to be an engineer. They design things, and you don't teach that in the public schools . . . . Then, I got into debate, and I wanted to be a lawyer . . . . Then,

> I got into psychology and wanted to do my own research. My subject is not good for teaching in high school--I'd rather deal with people who want to learn.

The English and psychology majors were attracted to their disciplines because they had significant role models, both at home and at school. With their role models, these bright students learned at an early age to love academics and to pursue the intellectual life.

Career Aspirations and Expectations

Physics majors sought careers in engineering; biology majors, medicine and health care; and English and psychology majors, careers in academia. All were interested in "stimulating" work environments where they would be "working with people" and either "helping those less fortunate" than themselves or "doing research that makes things better in the real world." Physics majors wanted to "solve problems," "communicate what's going on," "enjoy what [they're] doing," and "make a fair amount of money." Biology majors wanted to provide "good dental care for low-income people" or go into neonatology and genetic research or family medicine. English majors wanted to teach at the college level and have time for travel or were "just undecided." Psychology majors wanted to provide family therapy in a university setting or "get into the big issues" and "do something world shaking."

Although some were interested in "making a fair amount of money" in their careers, urban students alluded to the fact that "right now money was not a real big thing." Those urban students from upper-middle-class backgrounds were less concerned about their financial futures since their fathers had "already made plenty" or considered themselves idealistic students who know that with their talent, they'll "make enough to pay the

bills and then some." The former perception was held by students whose fathers "gave them a hard time" about the need to make a living. These students' fathers were generally engineers or physicians. The latter perception was held by students whose fathers were professors and held similar values about work and money.

The rural students were more inclined to be concerned about their financial futures. The physics major, whose father was a minister, claimed that he wanted to "make more than a preacher" since he and his fiance had already planned for a large family. This student, interested in management in governmental civil engineering, said:

> I'll . . . have to pull down a big salary with three kids. . . . I don't want to spend all my time at work . . . . Actually, I'd leave a job if it excluded me from being with my family. You see, that was the nice thing about being a minister's son--we were together a whole lot.

This rural student hoped to make $35,000 in ten years, and the pre-med biology major rural student hoped to earn $48,000 because that would enable him "to buy a condo and a Porsche." However, this student, who became interested in neonatology during a semester-long internship at major medical research university in the Midwest last year, stated:

> If you want to make money there are a lot of easier ways--try Merrill Lynch . . . . I'll be $100,000 in debt when I leave medical school . . . . Basically, I want to be comfortable--like everyone else. However, I'd rather live in the mountains and do pediatrics than live in Miami and do $5,000 face-lifts on old, rich ladies.

Working with "exciting ideas," "contributing to mankind," and "enjoying their work" were the centerpiece of these students' career aspirations and expectations. As a pyshcology major (3.8 GPA and 1350 SAT) claimed:

> I could think of a lot more lucrative jobs that I could

> easily do that are not in government or in research universities . . . . I'd rather be poor as long as I could think, analyze, and be creative in my job.

Career Decisions Not To Teach and Public School Experiences

In some respects, most of these students at Johnson could envision themselves as teachers. In large measure, a social awareness and positive public school experiences appeared to contribute to their consideration of teaching as a short-term career alternative or as a "reprieve" from further schooling. In fact, for a number of students teaching in a private school would enable them to "put off graduate school for a while" and would allow them to "have contact with kids" which they considered to be a "neat experience." Private schools were attractive to these students since they "did not require any teacher certification," and "parents had to pay [for their children's education] and therefore would motivate the students" to learn.

While some "had thought about teaching" and "wouldn't mind it," others were not sure they would enjoy it. A rural biology major (3.4 GPA and 1200 SAT) interested in genetic research or pediatrics said:

> Public school teachers have to put up with a lot of grief. There are so many different factors . . . . I had a great math teacher, but if they didn't dump remedial math on her, she could have taught us more.

He continued:

> It would be neat. But, I probably couldn't do it since I don't have the calling. I'm directed toward medicine. I'm not saying teaching is not as useful as medicine--it is, but medicine is more stimulating to me . . . . Therefore, money doesn't make a difference . . . . I guess, the big thing that makes it unattractive is the lack of control.

An English major (4.0 GPA and 1400 SAT) noted she "would be expected to teach all kinds of students--those who were not the most motivated." This

concern was voiced also by a biology major (3.5 GPA and 1280 SAT). However, this student, who intended to go into public health denistry, had other concerns and experiences:

> Teaching is really hard. I thought about it for awhile and actually did my student teaching. You don't always get to teach the advanced biology students. Plus, teachers just don't get any respect.

In fact, it appeared that this bright biology student was taught this by teachers themselves. She continued:

> When I did my student teaching I was told by my cooperating teacher, "Why are you going into teaching? . . . You can do better . . . . We have to teach, you don't."

Additionally, these students perceived that they "would get bored with teaching" after a few years; they would "have to do a lot more in schools than just teach physics"--such as homeroom, extracurricular activities, and coaching; and further, there would be a "need to do social work."

> I'd get bored with it . . . . It doesn't pay, but if you enjoy it, the hours are good . . . . I had this great math teacher in high school, and I thought about [teaching] for awhile . . . . My school was lousy, and I thought I could help it . . . . I thought I could do a good job. But, I got to Johnson, and I decided I didn't want to go back. There is not a lot going on [back home].

> My roommate's fiance teaches. It is awful--the students she has to teach . . . . One guy almost got thrown out her [third story] window. That's one thing that turns me off. Teachers' social status has gone down . . . .

> Some will teach regardless. Those are the best anyway. If you got the salaries up, you'd get more teachers. But, you would not necessarily get better teachers.

Summary of Johnson College

The career expectations of these students at Johnson were influenced by an early identification with their parents' professions, intellectual

pursuits, and mechanical hobbies. Role models and experiences within the public schools introduced other career options for some students--especially those who sought alternatives different from their parents. Urban students expected careers similar to their parents' backgrounds, and rural students aspired to those that enabled them to have more secure and comfortable financial futures. Johnson seemed to foster a social awareness that contributed to the students' idealism and humanitarian concerns. These values and attitudes were merged with their career goals, and their language and demeanor did not exhibit the materialistic objectives often associated with today's college students. While these values and attitudes are often associated with teaching careers, these students were not considering teaching as a career alternative. Salary appeared to be more important to rural students than to urban students. All these students sought intellectual, stimulating, and interactive work environments. Public school teaching could not provide an environment like this for them. At least, that was the message they had been receiving.

BAPTIST UNIVERSITY

Baptist University, a religiously affiliated liberal arts institution, serves 2,600 men (55 percent) and women (45 percent). Of these students, one-fifth are part-time. Graduate programs in business and education serve 500 students. The University, founded as a small academy in 1887, recently began its first professional program--a law school. Although half of the student body is Baptist, there is a concerted effort to have a diverse students population. A 1982 freshman student profile showed: 74 percent were from in-state, 80 percent lived in college housing, 20 percent commuted, 8 percent had minority backgrounds, and 1 percent were foreign students. A 1983 undergraduate profile showed: 10 percent chose the arts and humanities; 6 percent, the social sciences; 35 percent, business; 20 percent, education; and 10 percent chose religion as their major field of study.

Baptist University is located in a rural residential community 30 miles from a major metropolitan area of the state. The University promotes that it is located in "one of the most progressive regions for education and research in the Southeast."

The Students

Sixteen students were interviewed: six chemistry majors, six math majors (one was a math education major), and four business. Fifteen students were white, and one was minority. Eight were female. The student scores on the SAT ranged from 620 to 1250 and their GPAs from 2.2 to 3.9. Most were either 21 or 22 years of age. Two older (26 and 28) female students, both business majors, commuted from a nearby military installation where their husbands were stationed. Most of these students came from

the surrounding area and their parents generally had blue-collar occupations or were in public education as principals or teachers. Several were first-generation college students. If not, their older brothers or sisters tended to be teachers. These rural students, much like their urban counterparts, chose Baptist because it was "small" and "not a wild party school." It was important for many of these students that the school had a "strong religious affiliation."

Degree Choice

Chemistry majors tended to have had earlier experiences that influenced them to be more interested in the sciences than the humanities. For example, some mentioned their grandparents or parents "pushing them toward science and medical school;" others related early medical problems which enabled them to "get close to doctors." Interest was also acquired in the public schools; science was "challenging and demanding," "something that couldn't be learned overnight." An urban, female chemistry student (3.5 GPA and 740 SAT) noted that "science was nothing like history and English where all you have to do is memorize facts." An urban male chemistry major, who was "always strong in math, physics, and chemistry," (3.0 GPA and 1150 SAT) noted:

> It is a challenge . . . . I like to see why things work . . . . [Science] makes things fit into an order . . . . I like that, and I also like the fact that I feel good if I do well.

Generally, these students were undecided on their major when they entered the University. Once the chemistry department chairperson "got a hold of them," they decided on chemistry or "switched" from a major such as biology. This professor, who had "quite a reputation" on campus for recruiting students to his program, "enjoyed" his students and convinced

them that there was "quite a lot of opportunity" in industrial chemistry. In fact, this professor "pushed" his students away from chemistry education and public school teaching since in industry there would be "no papers to grade, no discipline problems, and no hassles." Besides the "low pay" in teaching, this professor voiced another reason why he discouraged his chemistry students from going into education:

> My wife teaches [in the public schools] . . . . I can't stand the way the students treat her. The administration can't touch them.

Math majors tended to be more influenced in their degree choice by their math teachers in high school. This occurred because these students, all from rural areas and smaller schools, often had the same math teacher throughout their high school experience. These teachers had a "good grasp" of the subject matter, were "willing to help after class," and "took a personal interest in students." The students felt that these public school math teachers were all "still teaching" because they're "happy" and "close to home." Although these mentors were described as satisfied career teachers, they did not encourage their math students to become teachers. Bright math students in high school were "expected to do better" by going into either computer science or engineering. Only the math education major (3.9 GPA and 1200 SAT) indicated that her math teacher was influential in her choosing teaching as a career. However, other factors influenced her degree choice. She had a mother who was a "very satisfied" seventh grade math teacher. Further, she "always wanted to help other students" while in school. Another factor differentiated her from the other math majors. Most described math as attractive, "more objective," "a right and a wrong," and "nice order to it;" the math education major described that math gave her an opportunity to "help people." In fact, it was evident that teaching

was more important to her than math itself. She originally wanted to major in early childhood education when she entered Baptist, but switched because there "would be a better opportunity finding a job near home" if she majored in math.

Business majors had other influences on their degree choice. For the female students, it was having work experiences as a secretary and realizing there was "a lot more [they] could do" with a degree in business. For the male students, it was "growing up poor" and realizing there was "a great deal of opportunity" in banks and corporations if one had a business degree. None of these students were particularly influenced in their degree choice by their high school teachers, except those having parents who were teachers. It was apparent that education and teaching were not in their career path since: "Mom had always told (me) not to be a teacher."

Career Aspirations and Expectations

The career aspirations of students at Baptist focused on finding "a job with a decent future." Rural students recognized that there was "very little back home," and urban students stressed that they would "like to do as well as [their] parents." Of the rural students, only the bright math major (3.9 GPA and 1200 SAT) appeared comfortable with a life style similar to her parents. (Her mother was a teacher.) Although others noted that they "wanted it all," the overall pattern was that they "didn't want to be super-rich," but "well, secure," and "not struggling." Others noted that they wanted to have a job they "wouldn't lose" or just the "highest [salary] near home." Of the urban students, only those associated with the military appeared to be unconcerned where their careers geographically might take them. There was a tendency for urban females to want to return

to their home city upon graduation--a place that was "safe and secure."

While most of these students had not had their first job interview, those that had voiced considerable concern about "finding a job." Personnel directors in business and industry "had told [them] that they didn't have anything." This was evident for business, chemistry, and math majors--even for the bright female (3.9 GPA and 1200 SAT) who intended to teach. Because she had applied only to those school districts that were within commuting distance of her parent's home, she was not sure she would find a teaching job by next fall.

> The main thing that [school system personnel administrators] ask you is if you are qualified to do things outside of teaching and the classroom. They ask if you can coach and then, can you discipline . . . . I think it is terrible that they hire coaches first.

Chemistry majors recognized that there was "not much money at first" in industry ($15,000 - $17,000 starting), but with an M.S. or Ph.D. one "could be making $35,000 - $40,000 in a few years." Some of these students wanted to enter management after earning their advanced degrees so they could "tell the bench chemist [with the B.S. degree] what to do." In fact, some claimed that without the advanced degrees, the chemist in industry "tops out in the low 30s" and "takes a lot of orders." Most noted that they intended to work full-time on their graduate degrees next year or begin working with a "good company" that "would help put [them] through graduate school." Although the female chemistry majors noted that when they had children, their careers would be "interrupted," they generally felt their careers "would not be hurt" by family responsibilities. However, it was noted that "doing chemistry in industry is high-pressure and competitive." One female student (3.5 GPA and 740 SAT) felt that working for state government in a "stable and relaxed" environment might be

"better-suited for a chemist who was also a mother."

Math majors tended to be comfortable about their employment futures. A bright male student (3.9 GPA and 1260 GRE), who was headed to graduate school on a scholarship, had a "pretty good" idea of where he was headed. After completing his masters, he expected to work in research and development, hopefully "doing something exciting" such as working for the Department of Defense. Starting at $20,000 - $25,000, he hoped to "pay something back to his parents" who had "supported [him] with great difficulty" in his years at Baptist. This student indicated that he was not greedy," but came from a "pretty poor family." His "parents expected a lot of" him, and it was evident that he expected a lot of himself. He had hoped to "stay close to home," but "not too close" since there was "no opportunity" within commuting distance. Working in a "moderate-size city," he would be able to "go back to school for [his] M.B.A." and get into management. Noting that "pay would have something to do with" any job mobility, he asserted that "I really want to do something I enjoy." For him, this meant not only working in an "exciting" field, but also "starting with a problem and being able to come out with a solution."

Other math students thought they would "combine math and computers" in industry. Some saw themselves as systems analysts where they wouldn't "necessarily have to be in front of a computer all day," while others saw themselves as software developers where they "could work by themselves." These students had average grades (2.2 to 2.9 GPA) and tended to want to "get into a job," "grow with it," "keep it," and "be happy." They felt that a degree in math could provide them with jobs that had "decent salaries" (starting at $15,000 - $18,000) and "were not sure where [they] would land." One student, unsure of her prospective employment, "would be

honored if [she] got a call from an employer to have a chance."

Female business majors, who had husbands stationed at a nearby military installation, recognized that they would be follow their spouses and were uncertain about their careers. However, because of their previous work experiences, they seemed to be well-suited for personnel administration or management of a retail clothing store. Both these students (GPAs 2.5 and 2.8 and no children) stated that "long hours" were no problem, and they "enjoyed a business environment" that was "fast-paced" and liked to "meet different people." With husbands as career officers, both considered their income as secondary and did not specify any particular financial goals. On the other hand, both male business majors who came from poorer, rural backgrounds, considered the business world as their path to the "American Dream." However, a "realistic" business curriculum at Baptist helped them to recognized that one had to "start off small" and then work "[one's] way up the corporate ladder." After "getting a job in the city," both these students (with 2.8 and 3.1 GPAs) hoped to have their "MBAs paid for" by their employer. While one student considered moving to "anywhere in the world," the other thought that it "would be nice not to have to go too far from home."

Career Decisions Not To Teach and Public School Experiences

There were diverse variables that influenced these students at Baptist from considering teaching as a career. First, students "didn't have the temperament" or the "patience" to teach. Students with these perceptions came from large high schools and had been placed in "GT [gifted and talented] classes." They attended "all the same classes" with a "small group" of advanced students and were "separated" in high school from those

having lesser academic ability. In fact, a bright chemistry student (3.8 GPA and 1250 SAT) noted that in "GT classes [guidance counselors] would take you out and tell you how smart you were." When they took classes (such as chorus) where "all the cliques were allowed to be together," strong impressions of public school teaching were developed. This was well-articulated by a female chemistry major (3.8 GPA and 1250 SAT), whose first love was music and singing.

> I could tell from my chorus teacher what I didn't want to be. She was run over . . . . She had all of them in her class . . . . Why would someone go to school for so many years just to get abused by students? . . . I don't have the mind-set to deal with those kinds of people.

Some students "couldn't see" teaching because "it would be nerve-racking," "those kids don't think twice about drinking beer before class," and they "end up getting away with murder." Consequently, these students were likely to feel that they "couldn't handle" teaching, "would rather work with adults," and would teach only those "people who wanted to learn."

Bright rural students in chemistry and math, who attended small high schools and "enjoyed getting along with everyone," were more inclined to consider teaching, but there were other concerns. These included: "not being able to deal with all those emotional problems" that many students being to school (especially the larger high schools) and "not having the patience to teach the same thing over and over." Nonetheless, these students, who had more initmate and diverse relationships in their public school experience, thought they would enjoy teaching since they "loved young people" or wanted "to feel that [they were] helping someone."

Average rural students in math and business tended to view teaching as a rural occupation, and rural occupations were just what they did not want. To them, teachers seemed to just "drive old cars" and "wear old clothes."

As one math major (2.7 GPA and 825 SAT) noted, "Teaching is a poor person's occupation." For those students who wanted to "work in the city," be a "member of a spa," and "have a good time," teaching was not a career consideration.

Summary of Baptist University

The career expectations of these students were influenced by their backgrounds and, to some extent for chemistry majors, their college professors. Some rural students were encouraged to move away from their backgrounds. Others were unsure about "leaving home." Most of these students were reluctant to venture too far from their homes. In fact, this was why they chose to attend Baptist in the first place.

Bright math and science students were motivated to enter their fields because of their perceptions of (1) the intrinsic order associated with their subject matters and (2) the social sciences and humanities' being less demanding, challenging, and interesting. This latter perception appeared to be developed through their teachers' methods of instruction. Business students were motivated to enter their field because of their perceptions that there would be more opportunity as they moved away from rural life or as they followed their spouses in their careers.

Chemistry students appeared to be more aware of actual job conditions in industry since their professors spent considerable time and effort guiding their careers. It was understood that graduate degrees were essential to climb the career ladders of the chemical industry. Math students appeared to be aware of their prospective options due to either previous experience or their college training. One bright math major headed to graduate school was comfortable about his future; others were

less sure.

Different experiences, influences, and perceptions prevented these students at Baptist from considering teaching as a career such as: (1) bright students tracked in high school being isolated from the diverse student groups, (2) student discipline problems (which taught them to want to work with adults), (3) emotional problems of today's high school students and, (4) a rejection of rural life styles. However, the experiences, influences, and perceptions of the bright math major (3.9 GPA and 1200 SAT), who will enter the occupation of public school teaching, provided interesting insights into her values and attitudes regarding her career development as a teacher.

> We are both grade conscious--we worry about how well we do in school. When it comes to teaching, she has no patience . . . . She will go into pharmacy . . . . She likes to get out and do things--she's kinda wild . . . that's why she went to [the University].
>
> It was kinda scary after consolidation, but it got better--I got to meet a lot of different people . . . . We had no real problems like they did in the city . . . . My math teacher was real, real good--real strict, but real concerned. Along with my mother, she was the reason I wanted to teach . . . . I always liked helping students with their math problems.
>
> I like to help--especially lower students. They can be so loving. I know I can make it interesting . . . . I have patience and I try my best to explain.
>
> Most of them say, "I wouldn't do it if I were you." They discourage me because of all the homework, putting up with the students, and you don't get paid enough . . . . But, most importantly, they say, "I couldn't explain it--I couldn't do it."

In large measure, her values, attitudes, and interpersonal and communication skills differed greatly from other bright college seniors who chose not to teach.